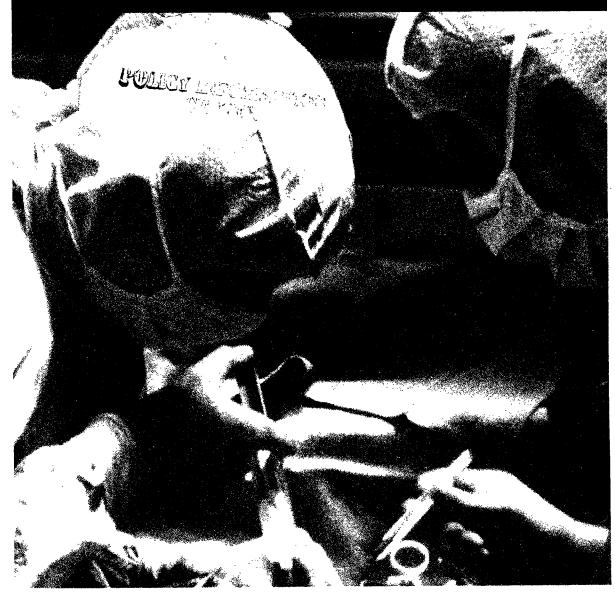# Medicare's Disproportionate Share Adjustment For Hospitals

A **CBO STUDY**

MEDICARE'S DISPROPORTIONATE SHARE ADJUSTMENT FOR HOSPITALS

The Congress of the United States
Congressional Budget Office

NOTES

Unless otherwise indicated, all years referred to in the text are federal fiscal years.

Details in the text and tables of this report may not add to totals because of rounding.

The terms "case" and "discharge" are used synonymously throughout the text.

PREFACE

Under provisions of the Consolidated Omnibus Budget Reconciliation Act of 1985, the Congress required the Congressional Budget Office (CBO) to study the adjustment in Medicare's Prospective Payment System (PPS) that provides additional payments to hospitals treating a disproportionately large share of low-income patients. In response to that mandate, this report addresses the following topics:

o   The distribution of payments to hospitals, that result from the so-called "disproportionate share" adjustment;

o   The relationship between serving a disproportionately large share of low-income patients and hospitals' recent costs of treating Medicare patients; and

o   The effects on hospitals, especially disproportionate share hospitals, of options for the disproportionate share adjustment.

In accordance with CBO's mandate to provide objective and impartial analysis, this report contains no recommendations.

The report was written by Jack Rodgers of the Human Resources and Community Development Division, under the supervision of Nancy M. Gordon and Kathryn M. Langwell. Jodi L. Korb programmed the statistical analyses and simulations. Harriet L. Komisar made many substantial contributions, particularly in designing the hospital margin simulations.

Many others also contributed to the study. Stephen H. Long provided valuable insights into CBO's 1985 analysis and commented on several drafts of the current report. Alan Fairbank, Douglas Hamilton, Verdon S. Staines, and Roberton C. Williams made many useful suggestions. Julie A. Sochalski of the Prospective Payment Assessment Commission commented on an earlier draft.

Francis S. Pierce edited the manuscript under the supervision of Paul L. Houts. Nancy H. Brooks provided editorial assistance during production of the report. Sharon Corbin-Jallow typed the many drafts, and Kathryn Quattrone prepared the report for publication.

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SUMMARY

Since May 1986, Medicare's Prospective Payment System (PPS) has, included an adjustment that provides additional payments to hospitals that serve a disproportionately large share of low-income patients. This "disproportionate share adjustment" can be justified in at least two ways. First, it compensates hospitals for higher costs that may be associated with treating low-income patients. Second, it increases revenues, thereby reducing financial distress for hospitals with large shares of low-income Medicare and Medicaid patients. Some of these hospitals treat many other low-income patients who lack insurance and are unable to pay for their care. Both justifications are consistent with the goal of ensuring ongoing access to care for low-income Medicare beneficiaries and for all beneficiaries who reside in areas with substantial low-income populations.

Under current law, urban hospitals with 100 or more beds that have "disproportionate share indexes" of 15 percent or more receive at least a 2.5 percent adjustment. The index is defined as the sum of two ratios. The first ratio is the proportion of all Medicare patient days that are attributable to beneficiaries of Supplemental Security Income (SSI), a means-tested cash benefit program for the elderly and disabled. The second ratio is the proportion of all patient days for which Medicaid is the primary payer. Hospitals with larger indexes receive larger adjustments. For example, big urban hospitals (100 or more beds) with indexes of 55 percent or more receive a minimum adjustment of 28.2 percent. Under different sets of rules, urban hospitals with fewer than 100 beds, and rural hospitals, may also qualify for disproportionate share adjustments, but these groups receive only 4 percent of total disproportionate share payments.

IMPACT OF THE DISPROPORTIONATE SHARE ADJUSTMENT

The disproportionate share adjustment is expected to account for $1.6 billion of the estimated $51.7 billion in payments under the **PPS** in fiscal year 1991 (see Summary Table 1). While the adjustment will

amount to only $169 per case, or about 3.2 percent of total PPS payments to all hospitals in the system, it can be extremely important for some hospitals that qualify for these payments. For example, hospitals with indexes of 55 percent or more are expected to receive an average adjustment of $1,163 per case, about 20 percent of their payments under the PPS.

SUMMARY TABLE 1.   ESTIMATED PROSPECTIVE PAYMENT SYSTEM PAYMENTS AND HOSPITALS' MARGINS BY SELECTED CHARACTERISTICS OF HOSPITALS

| Characteristics of Hospitals | Gross Payments (Incurred in fiscal year 1991)[a] | | | 1987 Operating Margins (Assuming 1991 law had been in effect) | |
	Total (Millions of dollars)	Dispro-portionate Share (Millions of dollars)	Dispro-portionate Share (As a percent of total)	PPS[b]	Overall[c]
All Hospitals	51,677	1,646	3.2	5.9	3.9
Disproportionate share	21,333	1,646	7.7	10.2	3.3
Nondisproportionate share	30,344	0	0.0	2.9	4.4
By Disproportionate Share Category[d]					
15 ≤ Index < 20	7,304	248	3.4	5.5	3.7
20 ≤ Index < 25	4,711	279	5.9	8.6	4.1
25 ≤ Index C 35	4,316	387	9.0	12.8	5.0
35 ≤ Index < 45	2,452	304	12.4	16.3	1.2
45 ≤ Index < 55	1,290	184	14.2	16.4	0.4
Index ≥ 55	1,260	244	19.4	18.3	0.0

SOURCE: Congressional Budget Office estimates based on data from the Health Care Financing Administration and other sources.

a.   Gross payments are the estimated reimbursements to hospitals under the Prospective Payment System (PPS)--that is. the sum of copaymenta by Medicare beneficiaries and payments for operating costs by the federal government.

b.   The PPS operating margin is defined as: (PPS payments - PPS operating costs)/(PPS payments).

c.   The overall margin is defined as: (Total revenue - Total costs)/(Total revenue).

d.   The index is the disproportionate share index used in calculating the disproportionate share adjustment. The symbols 15 ≤ Index < 20 indicate hospitals with indexes from 15 percent up to (but not including) 20 percent. The symbol Index ≥ 55 indicates hospitals with an index of 55 percent or more.

To examine the adjustment's impact on hospitals in a different context, the Congressional Budget Office (CBO) also simulated hospitals' margins in 1987, assuming that PPS policies for 1991 were in effect in that year. (Hospitals' margins are defined as the difference between revenues and costs, divided by revenues.) The simulation showed that disproportionate share hospitals would have had an average margin on Medicare patients in 1987 of 10.2 percent compared with a 2.9 percent average margin at nondisproportionate share hospitals (see the next-to-last column in Summary Table 1). Moreover, the average PPS margin would have been higher the higher the index.

A completely different picture is presented by a simulation of the average overall margin--that is, the margin on total revenues from all payers. Disproportionate share hospitals would have had a 3.3 percent overall margin, and nondisproportionate share hospitals a 4.4 percent margin (see the last column of Summary Table 1). Moreover, these overall margins would have been lowest for disproportionate share hospitals with the highest indexes. For example, hospitals with indexes of 55 percent or more would have had an overall margin of zero even though their margin on Medicare patients would have been almost 20 percent.

ESTIMATES OF THE DISPROPORTIONATE SHARE ADJUSTMENT

When the disproportionate share adjustment was designed in 1985, the Congress relied on CBO's estimates of the relationship between costs and serving a high proportion of low-income patients, which were based on 1981 cost data. These data were believed to be a reasonable basis for estimating "legitimate" differences in the costs of treating patients with the same diagnosis--that is, differences in costs that were unrelated to differences in efficiency or in the quality of care. At that time, the Congress also mandated that CBO reexamine the adjustment. Data from more recent years were expected to be considerably more accurate in some important respects than those from 1981. Accordingly, using 1987 data, this analysis reestimates the relationship between service to low-income patients, as measured by the disproportionate share index, and hospitals' costs.

Use of 1987 data poses a potential problem, however. Some hospitals that treat large shares of low-income patients have been under considerable financial pressure during the 1980s. If, in response, they have had to lower the average quality of care they provide, the **1987** data would not be appropriate for estimating the true relationship between the cost of providing care of the same quality and the presence of low-income patients. In this case, the 1981 data might be preferred because they would not reflect any such changes in quality.

The more recent data indicate that the higher costs **associated** with serving low-income patients in 1981 had almost disappeared by 1987, but the available evidence does not resolve the fundamental question of why. CBO used two statistical models for this analysis. The first model assumes that all aspects of the 1991 PPS except the disproportionate share adjustment were in effect in 1987. In that model, only for big urban hospitals with indexes of 55 percent or more were the estimated disproportionate share adjustments statistically different from zero (see Summary Table 2). The second model allows both the disproportionate share adjustment and the closely related teaching adjustment to vary from their legislated values, because the Congress lowered the teaching adjustment when it originally enacted the disproportionate share adjustment. The disproportionate share adjustments estimated using this model were statistically greater than zero for big urban hospitals with indexes of 35 percent or more, but considerably lower than those provided under current law.

These statistical results are ambiguous. If disproportionate share hospitals have reduced their costs since 1981 because of increased efficiency, the adjustment would no longer be needed to compensate hospitals for higher costs that may be associated with treating low-income patients. But if costs have fallen because of reductions in the quality of care, these statistical analyses would not be an appropriate **basis for evaluating the adjustment. Finally, regardless of the answer to** this question, the disproportionate share adjustment remains a way of assisting some financially distressed hospitals.

SUMMARY TABLE 2.   ESTIMATED VALUES FOR THE DISPRO-
PORTIONATE **SHARE** ADJUSTMENT FOR
URBAN HOSPITALS WITH 100 OR MORE
BEDS BY DISPROPORTIONATE SHARE
INDEX, BASED ON TWO ALTERNATIVE
STATISTICAL MODELS

| | | Minimum Adjustment Under 1991 Law (Percent) | Statistical Model | |
| | | | 1991 Law Except for Indirect Teaching | |
Disproportionate Share Index	Number of Hospitals[a]		1991 Law[b]	Adjustment[c]
5 ≤ Index C 10	336	0.0	-0.4	0.2
10 ≤ Index < 15	239	0.0	-1.4	-0.8
15 ≤ Index < 20	403	2.5	-1.1	-0.3
20 ≤ Index C 25	235	5.5	-1.1	1.4
25 ≤ Index < 35	192	8.7	-1.7	1.1
35 ≤ Index < 45	103	15.2	-0.5	4.6***
45 ≤ Index < 55	56	21.7	0.0	4.9**
Index ≥ 55	77	28.2	5.2*	8.5***

SOURCE: **Congressional Budget Office estimates based on 1987 data from Health Care Financing Administration and other sources.**

NOTE: **Hospitals were grouped in categories with disproportionate share indexes ranging from 5 percent up to (but not including) 10 percent, and so on up to 55 percent or more.**

*   **Statistically different from zero at the 10 percent level.**

**   **Statistically different from zero at the 5 percent level.**

***   **Statistically different from zero at the 1 percent level.**

a.   **Number of hospitals included in the regression estimate.**

b.   **This estimation model assumed that all aspects of the Prospective Payment System (PPS) except the disproportionate share adjustment are the same as in 1991 law.**

c.   **This estimation model assumed that all aspects of the PPS except the disproportionate share adjustment and the indirect teaching adjustment are the same as in 1991 law.**

OPTIONS FOR THE DISPROPORTIONATE
SHARE ADJUSTMENT

The two justifications for the disproportionate share adjustment suggest very different responses to the statistical analyses. On the one hand, viewed in isolation, the statistical results from the 1987 cost data suggest that substantially reducing the disproportionate share adjustment would better align PPS payments with the costs now associated with treating low-income Medicare patients. On the other hand, the evidence from examining hospitals' margins suggests that the current disproportionate share adjustment is an important factor in ensuring the continued financial viability of some hospitals.

If the statistical analysis of costs was used as the primary guide to policy, the Congress might consider the following options (see Summary Table 3):

o   *Option I:* Eliminate almost all of the **disproportionate** share adjustment, retaining only a reduced adjustment for big urban hospitals (100 or more beds) with indexes of 55 percent or more. For these hospitals, the adjustment would be 5 percent--compared with a minimum adjustment of 28.2 percent under current law.

o   *Option 2:* Target a substantially reduced disproportionate share adjustment to big urban hospitals with the highest indexes, and reduce the adjustment provided to **hospitals** with graduate medical education programs (the "teaching" adjustment) from 7.7 percent to 4.6 percent.

Alternatively, if the size of margins was taken as the primary basis for policy, the Congress might consider the following options:

o   *Option 3:* Retain the disproportionate share adjustment as in 1991 law for hospitals with indexes of 35 percent or more-- that is, the categories that would have negative average overall margins in the absence of the adjustment.

SUMMARY TABLE 3.   ESTIMATED 1987 HOSPITAL MARGINS UNDER 1991 LAW AND UNDER THREE OPTIONS THAT WOULD REDUCE THE DISPROPORTIONATE SHARE ADJUSTMENT, IF SAVINGS WERE NOT RETURNED TO HOSPITALS **(In percent)**

Characteristics of Hospitals	PPS Margins[a]				Overall Margins[b]			
	1991 Law	Options			1991 Law	Options		
		1	2	3		1	2	3
All Hospitals	5.9		1.2	...	3.9			3.5
Disproportionate share	10.2	3.0	0.6	6.2	3.3	3.5	2.0	2.3
Nondisproportionate share	2.9	2.9	1.6	2.9	4.4	4.4	4.1	4.4
By Disproportionate Share Category[c]								
15 ≤ Index < 20	5.5	2.2	0.0	2.2	37	2 9	2 3	2.9
20 ≤ Index < 25	8.6	2.9	-0.1	2.9	4.1	2.7	2.0	2.7
25 ≤ Index < 35	12.8	4.2	1.0	4.2	1.2	2.9	2.2	2.9
35 ≤ Index < 45	16.3	4.5	1.4	16.3	0.4	-1.6	-2.0	1.2
45 ≤ Index < 55	16.4	2.5	1.7	16.4	...	-2.8	-3.0	0.4
Index ≥ 55	18.3	2.2		18.3	0.0	-2.9	-3.0	0.0

SOURCE: Congressional Budget Office estimates based on data for 1987 from the Health Care Financing Administration and other sources.

NOTES: Option 1:   Eliminate almost all of the disproportionate share adjustment, retaining only a reduced adjustment for big (100 or more beds) urban hospitals with indexes of 55 percent or more, For these hospitals, the adjustment would be 5 percent--compared with a minimum adjustment of 28.2 percent under 1991 law.

Option 2:   Target a substantially reduced disproportionate share adjustment to big urban hospitals with the highest indexes as shown below, and reduce the teaching adjustment from 7.7 percent to 4.6 percent:

Value of Index (Percent)[c]	Adjustment (Percent)
35 ≤ Index < 55	1
	5
Index ≥ 55	9

Option 3:   Retain the 1991 law disproportionate share adjustment only for hospitals with indexes of 35 percent or more.

a.   The Prospective Payment System (PPS) operating margin is defined as: (PPS payments - PPS operating costs)/(PPS payments).

b.   The overall margin is defined as: (Total revenue - Total costs)/(Total revenue).

c.   The index is the disproportionate share index used in calculating the disproportionate share adjustment. The symbols. 15 ≤ Index < 20 indicate hospitals with indexes from 15 percent up to (but not including) 20 percent. The symbol Index ≥ 55 indicates hospitals with an index of 55 percent or more.

o   *Option 4:* Retain the disproportionate share adjustment as in 1991 law.

If the disproportionate share adjustment was reduced, the resulting savings could be returned to all hospitals, or used for other purposes such as reducing the federal deficit. In the latter case, Option 1 would save $1.3 billion the first year, Option 2 would save $2.0 billion, and Option 3 would save $730 million.

Although the first two options would better align PPS payments with the additional costs associated with treating low-income Medicare patients, the resulting drop in payments to disproportionate share hospitals would exacerbate the problems of some financially troubled hospitals. These hospitals would have to respond by cutting back some activities if they were unable to operate more efficiently, and it is possible that a few would be forced to close. For example, if either of these options had been in place in 1987, disproportionate share hospitals with indexes of 55 percent or more would have had average overall losses of about 3 percent (that is, negative margins), compared with a zero margin if 1991 law had been in effect (see Summary Table 3). For expository simplicity, these impacts assume that total Prospective Payment System payments would be reduced under the options and the savings used for other purposes. The corresponding impacts under the assumption that the savings would be returned to all hospitals by raising basic PPS-rates enough to keep total PPS payments constant are shown in Appendix C. Although the specific estimates vary, the general patterns of impacts on hospitals would be the same.

Either of the last two options would maintain the current margins for some or all disproportionate share hospitals. Under Option 3, disproportionate share hospitals with indexes of 35 percent or more would have no change in PPS payments or margins compared with 1991 law. In contrast, the loss of disproportionate share payments for hospitals with indexes below *35* percent would lower their average overall margins to slightly under 3 percent, compared with an overall margin for all hospitals of 3.9 percent under 1991 law. Overall margins would not be affected for any type of hospital under Option *4, which* would retain the current adjustment.

CHAPTER I

INTRODUCTION

Since May 1986, Medicare's Prospective Payment System's **(PPS)** rates have included an adjustment that provides additional payments to hospitals that serve a disproportionately large share of low-income patients. This provision was part of the Consolidated Omnibus Budget Reconciliation Act of 1985. The "disproportionate share adjustment" was intended to compensate hospitals for higher costs that may be associated with treating low-income patients. Because some hospitals that receive disproportionate share adjustments are financially distressed and at risk of closing, the adjustment also helps to maintain access to care for some Medicare beneficiaries.

The first justification--providing a disproportionate share adjustment to PPS payments to reflect unavoidable differences in the costs of treating Medicare beneficiaries--is analogous to that for other adjustments to the PPS rates such as the teaching adjustment. Higher costs at disproportionate share hospitals may result if low-income Medicare patients are sicker and, therefore, more expensive to treat than other Medicare patients with the same diagnosis. Another reason for higher costs may be that hospitals with large numbers of low-income patients--regardless of whether they are Medicare enrollees--may provide additional staffing, facilities, and services (such as social workers and translators) in response to such patients' needs.

The second justification for the disproportionate share adjustment suggests that a portion of Medicare's payments be allocated in a way that would reduce financial distress for hospitals with large shares of low-income patients. In this case, Medicare's payments would not necessarily be linked with the costs of treating Medicare patients as defined under cost-based reimbursement principles. The allocation of additional funds to these hospitals may be essential to their financial viability. Without extra funds, these hospitals might close or reduce

the quality of care they provide, thereby adversely affecting some Medicare enrollees.

The Congress first expressed concern about hospitals serving high proportions of low-income patients in 1982, but an explicit adjustment was not enacted until 1986. At that time, the adjustment's rationale was closely linked to the first concept--namely, that the adjustment should reflect unavoidable differences in the costs of treating low-income patients, including low-income Medicare enrollees. Since 1986, however, concern has grown about the financial viability of hospitals in inner city and rural areas and the role of the disproportionate share adjustment in helping to alleviate the financial distress of these hospitals has been expanded.

The Congress enacted the original disproportionate share adjustment based on data collected before the PPS was implemented. Since the PPS was intended to increase efficiency and reduce the cost of providing care, the additional costs of serving a disproportionate share of low-income patients might be expected to have changed as well. Moreover, the quality of the data was expected to improve. For those reasons, the Congress mandated that the Congressional Budget Office re-examine the adjustment. In response to that mandate, this report to the Congress examines the disproportionate share adjustment based on the latest complete available data on hospitals' costs and payments. Specifically, the report addresses the following issues:

o   The distribution of payments to hospitals as a result of the disproportionate share adjustment;

o   The relationship between serving a disproportionately large share of low-income patients and the recent costs of treating Medicare patients; and

o   The various effects on hospitals, especially disproportionate share hospitals, of options for the disproportionate share adjustment.

CHAPTER II

BACKGROUND

In 1983, the Congress changed Medicare's system of paying for inpatient hospital services from a retrospective, cost-based reimbursement system to a Prospective Payment System (PPS). Under the new system, hospitals' payments for treating Medicare patients are predetermined, based on patients' diagnoses, and can be quite different from hospitals' actual costs. The Congress believed the new system would alleviate two serious problems caused by Medicare's previous cost-based system: inefficiency on the part of hospitals, and lack of federal control over expenditures for hospital care.

The prospective payment rates for each hospital are based on several cost-related factors believed to be outside the individual hospital's control. First, basic rates are calculated for 474 diagnosis related groups (DRGs), with separate rates determined for hospitals in large urban areas, hospitals in other urban areas, and hospitals in rural areas. These amounts are then adjusted for three factors: differences in wage levels in various geographic areas, the greater costs of providing care for Medicare patients in hospitals with teaching programs, and the higher costs related to treating a disproportionately large share of low-incomepatients. (These factors are usually called the wage adjustment, the indirect teaching adjustment, and the disproportionate share adjustment.) Finally, additional "outlier" payments are calculated for cases that involve extremely long hospital stays or that are exceptionally expensive (see Appendix A).

An estimated 9.7 million Medicare patients will be discharged from PPS hospitals in 1991 generating gross payments to hospitals estimated at $51.7 billion (see Table 1). Of this total, $1.6 billion, or only about 3 percent, will be the result of the disproportionate share adjustment and $2.8 billion, or about 5.3 percent, will be the result of the closely related indirect teaching adjustment. Discharges under the

TABLE 1.   DISCHARGES AND PAYMENTS UNDER THE
            PROSPECTIVE PAYMENT SYSTEM, 1991-1995
            (Incurred amounts by fiscal year)

	1991	1992	1993	1994	1995
Discharges (Millions)	9.7	10.0	10.3	10.6	10.9
Gross Payments **(Billions of dollars)**	51.7	57.2	63.1	69.4	75.8
Disproportionate share payments	1.6	1.8	2.0	2.2	2.4
Indirect teaching payments	2.8	3.1	3.4	3.7	4.1

SOURCE: Congressional Budget Office estimates.

NOTE: Gross payments are the estimated reimbursements to hospitals under the Prospective Payment
         System; that is. they are the sum of copayments by Medicare beneficiaries and payments by the
         federal government.

PPS are **expected to grow** at an annual rate of about 3 percent, reaching 10.9 million in 1995. Payments, however, are expected to continue to grow at an average annual rate of 10 percent, reaching $75.13 billion in 1995. Under 1991 law, payments for the disproportionate sb.are and teaching adjustments in that year will be $2.4 billion and $4.1 billion, respectively. Because the disproportionate share adjustment's authorization expires in 1995, however, no payments related to it are scheduled for 1996. Instead, the teaching adjustment will be raised by 0.6 percentage point (from 7.7 percent to 8.3 percent) in 1996.

THE LEGISLATIVE HISTORY OF THE DISPROPORTIONATE SHARE ADJUSTMENT

Special status for certain disproportionate share hospitals was first recognized by the Congress in 1982. The Tax Equity and Fiscal Responsibility Act of 1982 (TEFRA) contained a provision that directed the Secretary of the Department of Health and Human Services to determine the extent to which the TEFRA hospital reimbursement limits should be adjusted to take into account the extra costs that hospitals necessarily incur in treating low-income patients. Although

the Social Security Amendments of 1983 that created the PPS did not explicitly include a disproportionate share adjustment, they explicitly raised the indirect teaching adjustment to compensate for costs not otherwise accounted for in the system--in part, costs related to serving a disproportionately large share of low-income patients. The Deficit Reduction Act of 1984 directed the Secretary of Health and Human Services to define a disproportionate share hospital and to identify hospitals meeting the definition.

Under the Consolidated Omnibus Budget Reconciliation Act of 1985, the Congress added an explicit adjustment for hospitals with a disproportionately large share of low-income patients. At the same time, it reduced the indirect teaching adjustment from 11.59 percent to 8.1 percent, in part to offset the large proportion of disproportionate share payments that would be received by teaching hospitals under the amended system. The adjustment did not, however, infuse new money into the Medicare PPS, but reallocated money by reducing payments to teaching hospitals and reducing the basic rates.

The disproportionate share adjustment is based on a "dispropor-tionate share index," which has been unchanged since the original legislation and is the sum of two ratios. The first ratio was the propor-tion of all Medicare patient days that are attributable to beneficiaries of Supplemental Security Income (SSI), a means-tested cash benefit program for aged and disabled people. The second ratio was the pro-portion of all patient days for which Medicaid is the primary payer. For example, a hospital at which **15** percent of Medicare patient days were attributable to patients who receive SSI and at which Medicaid was the primary payer for **20** percent of all patient days would have had an index of 35 percent.[1] The value of the index determined both the hospital's eligibility for any disproportionate share payments and the size of the adjustment.

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1.   A hoepital at which 34 percent of Medicare patient days were attributable to patients who received Supplemental Security Income (SSI) and at which Medicaid was the primary payer for only 1 per-cent of all patient days would also have an index of 35 percent. Similarly, a hoepital at which only 1 percent of Medicare patient days were attributable to patients who received SSI and at which Medi-caid was the primary payer for 34 percent of all patient daye would also have had an index of 35 percent.

The adjustment, under the original legislation, varied among the following three categories of hospitals:

o   ***Urban Hospitals with Fewer Than 100 Beds.*** Urban hospitals with fewer than 100 beds and indexes of 40 percent or more received an adjustment of 5.0 percent. These hospitals received the same adjustment no matter by how much the index exceeded 40 percent. The disproportionate share adjustment was applied to the payments per case after all other adjustments, except for teaching, were taken. For example, a hospital that had a disproportionate share adjustment of 5.0 percent would have received an additional $250 for a discharge that would otherwise have had a payment of $5,000 ($250 = 0.05 x $5,000).

o   ***Urban Hospitals with 100 or More Beds.*** Urban hospitals with 100 or more beds and indexes of 15 percent or more received a least a 2.5 percent adjustment. These hospitals also received an additional 0.5 percent for each one-point increase in the value of the index up to a maximum adjustment of 15.0 percent, which occurred at index values of 40 percent or more.

o   ***Rural Hospitals.*** Rural hospitals with indexes of 45 percent or more received an adjustment of 4.0 percent. These hospitals received the same adjustment no matter by how much the index exceeded 45 percent.

The original disproportionate share adjustment was based, in part, on CBO's analyses showing that urban hospitals with 100 or more beds and indexes of 15 percent or more had higher costs than other big urban hospitals. These analyses were based on 1981 data on the cost of treating Medicare patients--the most recent information available at the time, and the same data that had been used to estimate the other adjustments when the PPS was first established.2

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2.   CBO did not, however, find evidence to support a disproportionate share adjustment for urban hospitals with fewer than 100 bede or for rural hospitals. For a more complete discussion of CBO's earlier etudy, see the statement by Nancy M. Gordon, Assistant Director for Human Resources and Community Development, Congressional Budget Office, before the Subcommittee on Health of the Senate Committee on Finance, July 29, 1985.

In 1987, a change in the disproportionate share adjustment was once again combined with a reduction in the indirect teaching adjustment. Under the Omnibus Budget Reconciliation Act of 1987, the Congress removed the 15 percent constraint on the maximum disproportionate share adjustment for big urban hospitals and once again cut the teaching adjustment, this time from 8.1 percent to 7.7 percent.

THE DISPROPORTIONATE SHARE
ADJUSTMENT UNDER 1991 LAW

In the Omnibus Budget Reconciliation Act of 1989, the Congress again increased disproportionate share payments under the PPS. This legislation increased the disproportionate share adjustment for most urban hospitals with 100 or more beds. It also provided special treatment for sole community hospitals and rural referral centers, giving most of these hospitals higher disproportionate share adjustments than before.3 Finally, the legislation lowered the value of the index needed to qualify for a disproportionate share adjustment for rural hospitals with more than 100 beds from 45 percent to 30 percent. No further changes in the disproportionate share adjustment are scheduled under current law until its expiration at the end of fiscal year 1995.

The disproportionate share and teaching adjustments continue to be closely linked under current law. The teaching adjustment--which is currently set at 7.7 percent--is scheduled to increase to 8.3 percent on October 1, 1995, when the disproportionate share payments are to cease under the provisions of the Reconciliation Act of 1987.

The size of the disproportionate share adjustment, for a given value of the index, varies by type of hospital under the provisions of the Reconciliation Act of 1989 (see Table 2 for a short summary):

o   ***Urban Hospitals with Fewer Than 100 Beds.*** Urban hospitals with fewer than 100 beds that have indexes of 40 percent or more receive disproportionate share adjustments of 5.0 percent. These hospitals receive the same percentage adjustment no matter how much the index exceeds 40 percent.

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3.   For definitions of a sole community hoepital end a rural referral center, see the footnotes to Table 2.

TABLE 2.   THE DISPROPORTIONATE SHARE ADJUSTMENT
             UNDER CURRENT LAW

Type and Sire of Hospital	Threshold[a]	Minimum Adjustment (Percent)	Additional Payment (Percent)[b]
Urban Hospitals[c]			
Fewer Than109 Beds	40	5.0	None
100 or More Beds	15	2.5	0.60 (Index - 15)
	20.2	5.62	0.65 (Index - 20.2)
Rural Hospitals[c]			
Sole Community (Not Rural Referral)[d]	30	10.0	None
Rural Referral (Not Sole Community)[e]			
100 or fewer beds	45	13.0	0.60 (Index - 45)
More than100 beds	30	4.0	0.60 (Index - 30)
Both Sole Community and Rural Referral	30	10.0	None
	40	10.0	0.60 (Index - 40)
Other Rural[f]			
106 or fewer beds	45	4.0	None
More than100 beds	30	4.0	None

SOURCE: Congressional Budget Office.

NOTE: This table reflects CBO's preliminary interpretation of the changes enacted in the Omnibus
         Budget Reconciliation Act of 1989 that were effective April 1.1990.

         The table does not reflect one special category of disproportionate share hospital. Urban hos-
         pitals with 100 or more beds that demonstrate that more than 30 percent of their net inpatient
         revenues are derived from state and local government payments for indigent care (excluding
         payments for Medicare and Medicaid) qualify to receive a disproportionate share adjustment of
         30 percent.

a.   The threshold is the minimum value of the disproportionate share index needed to qualify for a dis-
      proportionate share adjustment. The index is stated in percentage points.

b.   The additional payment is stated as the percentage-point increase in the disproportionate share ad-
      justment for each percentage-point increase in the disproportionate share index.

c.   Rural hospitals with 500 or more beds are treated as urban hospitals in settii the disproportionate
      share adjustment, and are included in that category.

d.   Sole community hospitals are hospitals that (because of factors such as isolated location, weather
      conditions, travel conditions, or absence of other hospitals) are the sole source of inpatient services
      reasonably available in a geographic area. In some cases, their Prospective Payment System (PPS)
      payments are based on hospital-speciik costs rather than the PPS rates.

e.   Rural referral centers are rural hospitals that have certain characteristics in common with urban
      hospitals. Their PPS payments are based on the basic rate for hospitals in "other urban" areas (MSAs
      of 1 million or fewer people--970,600 people in New England).

f.   Other rural hospitals are located in rural areas but are neither rural referral centers nor sole
      community hospitals.

o   ***Urban Hospitals with 100 or More Beds.*** Urban hospitals
        with 100 or more beds that have indexes of 15 percent or
        more receive at least a 2.5 percent adjustment. For each ad-
        ditional point in the value of the index between 15 percent
        and 20.2 percent, hospitals receive an additional 0.6 percent
        adjustment; thus, the maximum adjustment for this group is
        5.62 percent. Hospitals with indexes of 20.2 percent or more
        receive an adjustment of 5.62 percent plus an additional 0.65
        percent for each one-point increase in the value of the index
        above 20.2 percent. For example, a hospital with an index of
        30.2 percent would receive an adjustment of 12.12 percent.
        (This hypothetical hospital would receive: $12.12 = 5.62 +
        0.65 \times (30.2 - 20.2)$)

o   ***Sole Community Hospitals.*** Sole community hospitals--that
        are not also rural referral centers--with indexes of 30 percent
        or more receive an adjustment of 10.0 percent. These hospi-
        tals receive the same percentage adjustment no matter by
        how much the index exceeds 30 percent.

o   ***Rural Referral Centers with 100 or Fewer Beds.*** Rural refer-
        ral centers with 100 or fewer beds--that are not also sole com-
        munity hospitals--with indexes of 45 percent or more receive
        an adjustment of at least 13 percent. Hospitals with indexes
        greater than 45 percent receive an additional 0.6 percent for
        each one-point increase in the value of the index. For exam-
        ple, a rural referral center with an index of 55 percent re-
        ceives an adjustment of 19.0 percent. (This hypothetical hos-
        pital would receive: $19.0 = 13.0 + 0.6 \times (55 - 45)$.)

o   ***Rural Referral Centers with More Than 100 Beds.*** Rural
        referral centers with more than 100 beds--that are not also
        sole community hospitals--with indexes of 30 percent or more
        receive an adjustment of at least 4.0 percent. Hospitals with
        indexes greater than 30 percent receive an additional 0.6
        percent for each one-point increase in the value of the index.
        Note that a big rural referral center with an index of 55 per-
        cent would receive the same adjustment of 19.0 percent as a
        small rural referral center--that is, one with 100 or fewer

beds--that also had an index of 55 percent. (This hypothetical hospital would receive: $19.0 = 4.0 + 0.6$ x $(55 - 30)$.)

o ***Sole Comnunity, Rural Referral Centers.*** Hospitals that qualify for both sole community and rural referral center treatment receive the higher of the amounts resulting from the two calculations. In other words, one of these hospitals with an index of 30 percent or more receives a minimum of 10 percent plus an additional 0.6 percent for each one-point increase in the value of the index above 40 percent.

o ***Other Rural Hospitals with 100 or Fewer Beds.*** Rural hospitals with 100 or fewer beds--that do not qualify for sole community or rural referral center treatment--that have indexes of 45 percent or more receive an adjustment of 4.0 percent. These hospitals receive the same adjustment no matter by how much the index exceeds 45 percent.

o ***Other Rural Hospitals with 100 or More Beds.*** Rural hospitals with more than 100 beds--that do not qualify for sole community or rural referral center treatment--that have indexes of 30 percent or more receive an adjustment of 4.0 percent. These hospitals receive the same adjustment no matter by how much the index exceeds 30 percent.

Under current law, an urban hospital with 100 beds or more and an index of *15* percent or more always receives a higher disproportionate share adjustment than a hospital with the same value of the index that is in any other category. In fact, the only hospitals that qualify for disproportionate share adjustments when their indexes are less than 30 percent are those in urban areas with 100 or more beds.

IMPACT OF THE DISPROPORTIONATE

SHARE ADJUSTMENT

The disproportionate share adjustment reallocated Medicare payments to hospitals, thereby affecting their revenue and financial status. To assess the impact of the disproportionate share adjustment on revenues, the Congressional Budget Office used 1987 data, adjusted to reflect 1991 law, to examine the distribution of total and disproportionate share payments among the different types of hospitals. Operating margins from treating Medicare patients, as well as overall hospital margins, were also examined in order to assess the extent to which the disproportionate share adjustment has been contributing to the financial viability of hospitals.

THE DISTRIBUTION OF
DISPROPORTIONATE SHARE PAYMENTS

One way to examine the impact of the disproportionate share adjustment is to consider the estimated distribution of Prospective Payment System payments in 1991 to hospitals with selected characteristics (see Table 3). The overall impact of the disproportionate share adjustment is expected to be rather modest: only about $169, or about 3.2 percent, of the $5,301 average payment per case will come from this adjustment. Disproportionate share payments will be less than 5 percent of total PPS revenues for all but two categories of hospitals shown in Table 3.

Disproportionate share payments vary systematically by geography. Urban hospitals are projected to receive about 96 percent of disproportionate share payments. Hospitals in large Metropolitan Statistical Areas (MSAs)--that is, MSAs with more' than 1 million people (more than 970,000 in New England)--will receive almost 60

TABLE 3.   ESTIMATED TOTAL PAYMENTS AND DISPROPORTIONATE
SHARE PAYMENTS UNDER THE PROSPECTIVE PAYMENT
SYSTEM BY SELECTED CHARACTERISTICS OF HOSPITALS
(Incurred amounts in fiscal year 1991)

Characteristics of Hospitals	Number of Hospitals	Cases (Percent)	Gross Payments (Percent)		Gross Payments per Case		
			Total	Dispro- portionate Share	Total (Dollars)	Dispro- portionate Share (Dollars)	Dispro- portionate Share (Percent of total)
Ail Hoepitale	5,737	100.0	160.0	100.0	5,301	169	3.2
Urban	3,109	78.6	85.7	96.2	5,784	207	3.6
Rural	2,628	21.4	14.3	3.8	3,530	30	0.9
				58.6			
MSA > 1 Million[a]	1,540	40.1	47.6	37.6	6,299	247	3.9
Other Urban[b]	1,542	38.1	37.6		5,244	167	3.2
Sole Community[c]	492	3.6	2.8	0.6	4,107	27	0.7
Rural Referral[d]	189	5.3	4.1	1.9	4.149	60	1.4
Other Rural*	1,974	13.0	7.8	1.4	3,188	18	0.6
Major Teaching[f]	228	9.1	15.0	32.2	8,716	595	6.8
Other Teaching[f]	963	33.9	37.2	35.8	5,818	179	3.1
Nonteaching	4,546	57.0	47.8	32.0	4,448	95	2.1
New England	244	5.5	5.9	3.1	5,756	97	1.7
Middle Atlantic	637	17.7	19.6	25.2	5,876	240	4.1
South Atlantic	781	16.2	14.9	15.1	4,873	158	3.2
East North Central	868	17.8	17.7	12.1	5275	115	2.2
East South Central	493	8.2	6.5	7.8	4,179	161	3.8
West North Central	799	8.0	7.4	3.4	4,872	71	1.5
West South Central	824	10.5	9.5	11.3	4,783	182	3.8
Mountain	398	4.3	4.2	1.8	5,127	69	1.3
Pacific	693	11.7	14.3	20.2	6,464	290	4.5

SOURCE: Congressional Budget Office estimates based on data from the Health Care Financing Administration and other sources.

NOTE: Gross payments are the estimated reimbursementa to hospitals under the Prospective Payment System (PPS); that is, they are the sum of copayments by Medicare beneficiaries and payments for operating costs by the federal government.

a.   MSA > 1 million refers to a Metropolitan Statistical Area (MSA) containing more than 1 million people (970,000 people in New England).

(Continued)

TABLE 3.   (Continued)

Characteristica of Hospitals	Number of Hospitals	Casee (Percent)	Gross Payments (Percent)		Gross Payments per Case		
			Total	Dispro-portionate Share	Total (Dollars)	Dispro-portionate Share (Dollars)	Dispro-portionate Share (Percent of total)
Urban							
Fewer **than** 100 beds	785	**4.7**	**3.9**	**0.4**	**4,379**	15	**0.3**
loo-249 beds	1,271	**24.7**	**23.9**	**27.3**	5,139	187	**3.6**
250-499 beds	848	35.2	39.0	43.4	5,874	208	3.5
500 beds or more	205	14.0	18.9	25.1	7,169	304	4.2
Rural							
Up to 50 beds	1,386	4.4	2.6	0.4	3,125	17	0.5
51-100 beds	746	**6.8**	**4.7**	0.5	3,315	14	0.4
101-200 beds	382	**3.9**	**3.0**	1.7 1.1	3,630	28	0.8
More than 200 beds	114				4,170	74	1.8
Voluntaryg	3,234	71.8	74.2	65.3	5,474	153	2.8
Urban Government	447	...8.5	10 .1.	23.3	6,331	465	7.3
Rural Government	888	**14.15.7**	12.1 **3.6**	10.2 1.2	3,405	37	1.1
Proprietary	1,168				4,562	122	2.7

b. Other urban hospitals are those located in **MSAs containing** 1 million or fewer people (970,000 people in New England) that **are** not sole community hospitals.

C. Sole community hospitals are hospitals that (because of **factors** such as isolated location, weather conditions, travel conditions, or absence of other hospitals) are the sole source of inpatient services reasonably available in a geographic area. In some cases, their PPS payments **are** baaed on **hospital-specific costs** rather than the PPS rates.

a. Rural referral centers are **rural** hospitals **that have** certain characteristics in common with urban hospitals. Their **PPS** payments are **based** on the basic rate for hospitals in other urban areas. Rural referral centers that are also sole community hoepitale are included in the **sole** community category.

e. **Other** rural hospitals are located in rural areas but are neither rural referral centers nor sole community hospitals.

f. Hospitals with intern-and-resident-to-bed ratios greater than **or** equal to 0.25 are called major teaching hospitale. Those with lower ratios are called other teaching hospitals.

g. Voluntary hospitals **are** hospitals owned end/or operated by a fraternal, religious, or not-for-profit community organization. This category of 3,234 hospitals includes 85 hospitals of unknown ownership.

TABLE 4.   ESTIMATED TOTAL PAYMENTS AND DISPROPORTIONATE
SHARE PAYMENTS UNDER THE PROSPECTIVE PAYMENT.
SYSTEM BY TYPES OF HOSPITALS
(Incurred amounts in fiscal year 1991)

| | | | Gross Payments (Percent) | | Gross Payments per Case | | |
Characteristics of Hospitals	Number of Hospitals	of Cases (Percent)	Total	Dispro-portionate Share	Total (Dollars)	Dispro-portionate Share (Dollars)	Dispro-portionate Share (Percent of total)
All Hospitals	5,737	100.0	100.0	100.0	5,301	169	3.2
Disproportionate share	1,577	35.7	41.3	100.0	6,125	472	7.7
Nondisproportionate share	4,160	64.3	58.7	0.0	4.844	0	0.0
Disproportionate Share[a]							
15 ≤ Index < 20	405	13.1	14.1	15.1	5,712	194	3.4
20 ≤ Index < 25	238	7.7	9.1	17.0	6,289	373	5.9
25 ≤ Index < 35	247	6.8	8.4	23.5	6,491	581	9.0
35 ≤ Index < 45	188	3.7	4.7	18.5	6,834	848	12.4
45 ≤ Index < 55	240	2.3	2.5	11.2	5,729	816	14.2
Index ≥ 55	259	2.1	2.4	14.8	6,101	1,183	19.4
Disproportionate Share							
MSA > 1 million[b]	574	15.0	20.7	58.6	7,329	661	9.0
Other Urban[c]	620	17.4	18.4	37.6	5,589	364	6.5
Rural	383	3.3	2.2	3.8	3,518	193	5.5

SOURCE: Congressional Budget Office estimates baaed on data from the Health Care Financing Ad-
ministration and other sources.

NOTE: Gross payments are the estimated reimbursements to hospitals under the Prospective Pay-
ment System (PPS); that is, they are the sum of copaymenta by Medicare beneficiaries and
payments for operating costs by the federal government.

a.   The index is the dieproportionate share index used in calculating the disproportionate share adjust-
ment. The symbols 15 ≤ Index C 20 indicate hospitals with indexes from 15 percent up to (but not
including) 20 percent. The symbol Index ≥ 55 indicates hospitals with an index of 55 percent or
more.

b.   MSA > 1 million refers to a Metropolitan Statistical Area (MSA) containing more than 1 million
people (970,000 people in New England).

(Continued)

TABLE 4.   (Continued)

Characteristics of Hospitals	Number of Hospitals	Cases (Percent)	Gross Payments (Percent)		Gross Payments per Case		
			Total	Disproportionate Share	Total (Dollars)	Disproportionate Share (Dollars)	Disproportionate Share (Percent of total)
Disproportionate Share							
Urban							
Fewer than							
100 beds	86	0.3	0.3	0.4	4,440	210	4.7
100 or more beds	1,108	32.1	38.8	95.8	6,414	504	7.9
Rural							
Sole community[d]	61	0.4	0.3	0.6	3,669	229	6.2
Rural referral*	28	0.9	0.8	1.9	4,521	353	7.8
Other rural[f]							
100 or fewer beds	234	1.1	0.6	0.7	2,912	109	3.7
More than							
100 beds	60	0.9	0.6	0.7	3,199	123	3.8
Disproportionate Share							
Teaching	597	20.8	27.6	68.0	7,043	553	7.9
Nonteaching	980	15.0	13.7	32.0	4,852	361	7.4
Nondisproportionate Share							
Teaching	594	22.2	24.6	0.0	5,864	0	
Nonteaching	3,666	42.0	34.1	0.0	4,304	0	8:X

c.   Other urban hospitals are those located in MSAs containing 1 million or fewer people (970,000 people in New England) that are not sole community hospitals.

d.   Sole community hospitals are hospitals that (because of factors such as isolated location, weather conditions, travel conditions, or absence of other hospitals) are the sole source of inpatient services reasonably available in a geographic area. In some cases, their PPS payments are based on hospital-specific costs rather than the PPS rates.

e.   Rural referral centers are rural hospitals that have certain characteristics in common with urban hospitals. Their PPS payments are based on the basic rate for hospitals in other urban areas. Rural referral centers that are also sole community hospitals are included in the sole community category.

f.   Other rural hospitals are located in rural areas but are neither rural referral centers nor sole community hospitals.

percent of total disproportionate share payments, although they will account for less than 50 percent of all **PPS** payments. Urban hospitals in smaller metropolitan areas will account for roughly the same proportions of cases, total payments, and disproportionate share payments. All three categories of rural hospitals will receive considerably smaller proportions of the disproportionate share payments, compared with their shares of all cases and total PPS payments.

Teaching hospitals are expected to receive about 68 percent of disproportionate share payments. Major teaching hospitals will receive about 32 percent of disproportionate share payments although they will receive only about 15 percent of total PPS payments. Consequently, disproportionate share payments will account for 6.8 percent of their total PPS payments. Nonteaching hospitals, on the other hand, will receive 32 percent of disproportionate share payments even though they account for almost 48 percent of total PPS payments.

Disproportionate share payments also vary by type of hospital ownership. Voluntary hospitals, which account for just over 70 percent of cases and total payments under the PPS, are expected to receive about 65 percent of disproportionate share payments. Urban government hospitals, which account for roughly 10 percent of cases and total payments, will receive almost a quarter of all disproportionate share payments; as a result, disproportionate share payments will account for 7.3 percent of their total PPS payments. Rural government hospitals will account for a considerably smaller share of disproportionate share payments--about 1 percent--compared with about 4 percent of total PPS payments.

Table 4 on page 14 shows how payments vary among types of disproportionate share hospitals. The 1,577 hospitals that qualify for the disproportionate share adjustment are estimated to account for about 36 percent of all cases and about 41 percent of gross payments under the prospective payment system in fiscal year 1991. These hospitals are expected, on average, to receive payments of $6,125 per case, or about $1,300 more than the average payment to nondisproportionate share hospitals. Of this difference, $472 will be directly attributable to the disproportionate share adjustment--the rest coming from higher payments for other adjustments under the PPS. Disproportionate

share payments are estimated to account for 7.7 percent of total PPS payments to disproportionate share hospitals in 1991.

Disproportionate share hospitals do not all share equally in the disproportionate share payments. Disproportionate share hospitals with indexes below 20 percent are expected to receive, on average, only $194 per case compared with an average of $1,183 per case for hospitals with indexes of 55 percent or more. Hospitals with indexes of 55 percent or more are expected to receive almost 15 percent of total disproportionate share payments even though they will account for only about 2 percent of all cases under the PPS and about 6 percent of all PPS cases discharged from disproportionate share hospitals.

Disproportionate share hospitals in urban areas with 100 or more beds are expected to receive almost 96 percent of the disproportionate share payments even though they will account for less than a third of total admissions. Almost 50 percent of urban hospitals with 100 or more beds will qualify for the disproportionate share adjustment. Only about 11 percent of urban hospitals with fewer than 100 beds will qualify for the adjustment and only about 15 percent of rural hospitals will qualify. The statistics in this paragraph can be calculated by combining data from Table 3 with data from Table 4. For example, 86 urban hospitals with fewer than 100 beds (see Table 4) represent about 11 percent of the 785 total hospitals with fewer than 100 beds (see Table 3).

Disproportionate share hospitals that are also teaching hospitals are estimated to receive, on average, $553 per case in disproportionate share payments, compared with an average of $361 per case for disproportionate share hospitals that are nonteaching hospitals. The percentage adjustment will be roughly the same, however, at both types of institution.

HOSPITAL MARGINS

Another way to examine the impact of the disproportionate share adjustment is to consider its relationship to hospital margins. Two types of margins are relevant: PPS margins reflect revenues from Medicare

relative to the costs of caring for Medicare patients, while overall margins reflect the hospital's total costs relative to its total revenues from all sources for all activities.

Any analysis of hospital margins, whether PPS or overall, presents many conceptual and technical problems.1 On the one hand, hospital margins in past years--which were the result of past policies instead of current law--are known with certainty but are not immediately relevant to the current situation. On the other hand, estimating current hospital margins would require forecasting 1990 or 1991 costs from 1987 data, a formidable analytic task whose results would necessarily be subject to a high degree of uncertainty.

A compromise between these two extremes is to examine 1987 hospital margins but to adjust them to reflect changes in Medicare's payment policies since then. In essence, this approach assumes that costs for treating Medicare and non-Medicare patients would have been unaffected by Medicare program changes between 1987 and 1991 and that non-Medicare payers would have made the same payments to hospitals in 1987 if 1991 law had been in place then.

Table 5 shows the results of these simulations. The first column of figures shows PPS operating margins for hospitals with selected characteristics. The PPS operating margin is defined as follows: (PPS revenues - PPS operating costs)/(PPS revenues). The average PPS margin of 5.9 percent indicates that hospitals, on average, were earning a higher margin on their Medicare patients than would have been the case under cost-based reimbursement. (Since revenues equal costs under cost-based reimbursement, the operating margin in that case is zero.) Disproportionate share hospitals would have had much higher average PPS operating margins compared with nondisproportionate share hospitals--10.2 percent compared with 2.9 percent. **Further-**

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1. Estimates of the Prospective Payment System margin are considerably less accurate than those of the overall margin because the determination of Medicare's share of total costs is based on accounting principles that are somewhat arbitrary. Under current regulations, the costs of routine services--that is, room and board--are apportioned on the basis of Medicare's share of total inpatient days, and the cost of ancillary services--services other than room and board, and professional services--are apportioned on the basis of Medicare's share of total inpatient charges. These arbitrary accounting rules may not reflect the actual costs of treating Medicare's patients.

TABLE 5.   ESTIMATED 1987 HOSPITAL MARGINS UNDER 1991 LAW,
             BY SELECTED CHARACTERISTICS OF HOSPITALS (In **percent**)

Characteristics of Hospitals	1991 Law	
	Prospective Payment System Margin	**Overall Margin**
All Hospitals		
All Hospitals	**5.9**	**3.9**
Urban	**5.7**	**3.7**
Rural	**7.0**	**5.1**
Teaching	**7.8**	**3.2**
Nonteaching	**3.9**	**4.8**
Disproportionate Share	10.2	**3.3**
Nondisproportionate Share	2.9	**4.4**
Disproportionat Share Hospitals		
15 ≤ Index < 20[a]	5.5	3.7
20 ≤ Index < 25	8.6	4.1
25 ≤ Index < 35	12.8	5.0
35 ≤ Index < 45	16.3	1.2
45 ≤ Index < 55	16.4	0.4
Index ≥ 55	18.3	0.0
Urban		
Fewer than 100 beds	**10.8**	**-2.4**
100 or more beds	**10.0**	**3.1**
Rural	13.0	**6.7**
Teaching	11.3	**3.0**
Nonteaching	6.1	**3.9**
Special Groups:		
MSA > 1 million[b]	10.6	1.9
Urban government	12.1	**2.8**
Rural referral center[c]	14.3	**7.9**

SOURCE: Congressional Budget Office estimates based on data for 1987 from the Health Care Financ-
           ing Adminiatration and other sources.

NOTES: The Prospective Payment System (PPS) operating margin is defined as: (PPS payments -
           Medicare operating costs)/(PPS payments).

           The overall margin is defined as: (Total revenue - Total costs)/(Total revenue).

a.   The index is the disproportionate share index used in calculating the disproportionate share adjust-
      ment. The symbols 15 ≤ Index < 20 indicate hospitals with indexes from 15 percent up to (but not
      including) 20 percent. The symbol Index ≥ 55 indicates hospitals with an index of 55 percent or
      more.

b.   MSA > 1 million refers to a Metropolitan Statistical Area (MSA) containing more than 1 million
      people (970,000 people in New England).

c.   Rural referral centers are rural hospitals that have certain characteristics in common with urban
      hospitals. Their PPS payments are based on the basic rate for hospitals in other urban areas. Rural
      referral centers that are also sole community hospitals are included in the sole community category
      (not shown in this table).

more, the disparity would have been greater the higher the level of the index--ranging from a 5.5 percent margin for disproportionate share hospitals with indexes below 20 percent to 18.3 percent for hospitals with indexes of 55 percent or more. Disproportionate share hospitals with teaching programs would have had an 11.3 percent average PPS margin compared with an 8.1 percent margin for disproportionate share hospitals without teaching programs. These figures represent averages among categories of hospitals. Within any given category, some hospitals could have large profits on treating PPS patients and others could have large losses on treating PPS patients.

Simulated overall margins--that is, ((Total Revenue - Total Costs)/ Total Revenue)--under 1991 law exhibit a dramatically different pat--tern from PPS margins, although once again, these figures represent averages within categories of hospitals. Within any given category, some hospitals could have large overall margins and others could have large overall losses. Disproportionate share hospitals would have had an overall margin of 3.3 percent with an average of 4.4 percent for nondisproportionate share hospitals and 3.9 percent for all hospitals. Furthermore, the average overall profit margin is much smaller for categories of hospitals with disproportionate share indexes of 35 percent or more than it is for categories with lower indexes. For example, the average overall margin for hospitals with indexes between 25 percent and 35 percent would have been 5.0 percent, whereas the average overall margin for hospitals with indexes of 55 percent or more would have been 0.0 percent. Urban disproportionate share hospitals with fewer than 100 beds would have had a particularly low overall margin--an average loss of 2.4 percent.

CHAPTER IV

ESTIMATING THE DISPROPORTIONATE

SHARE ADJUSTMENT

In response to the Congressional mandate, the Congressional Budget Office examined the disproportionate share adjustment using more recent data than were available when the adjustment was originally enacted. This section presents an analysis of the relationship between the extent to which hospitals serve a disproportionately large share of low-income patients and their costs of treating Medicare patients. Except for using more recent data and taking account of changes in the law, this analysis is identical to that performed when the Congress was originally considering the disproportionate share adjustment.

THE DATA AND THE STATISTICAL MODELS

CBO used 1981 data to assist the Congress when it initially designed the disproportionate share adjustment. This section of the report uses data on hospitals' costs from 1987--the latest available complete data file for the Medicare program--to reassess the relationship between serving low-income patients, as measured by the disproportionate share index, and hospitals' costs.

It is not clear, however, which year's data are best for policy purposes. On the one hand, data for more recent years are in some important respects considerably more accurate than the 1981 data. Hospitals' case mixes, for example, have probably been reported much more carefully in recent years, when they affected hospital revenues, than in 1981 when they did not. On the other hand, the 1981 data might be preferred precisely because they do not reflect certain changes in behavior that may have occurred. For example, if hospitals under severe financial pressure could not avoid lowering the quality of the care they provided, applying CBO's methodology to 1987 data would be less appropriate. This methodology depends critically on two assumptions. One is that the quality of care provided does not vary

systematically with the proportion of low-income patients that categories of hospitals treat. The other is that, where differences are observed between categories of hospitals in their average cost of treating patients with particular diagnoses, these differences may be interpreted as reflecting different costs of efficient treatment that are unavoidably associated with the hospitals' differing characteristics. If financial pressure between 1981 and 1987 caused some hospitals treating high proportions of low-income patients to reduce their average quality of care, any observed compression of cost differentials between these hospitals and those with low proportions of low-income patients would not necessarily reflect a reduction in the additional costs these hospitals incur to provide efficient care of the same quality. Unfortunately, available data do not permit a reliable assessment of possible changes in the quality of care over time.

In conducting its 1985 analysis, CBO assessed the merits of several statistical models. Its first step in this process was to identify the purpose each was to serve. One category of models--not used in CBO's analysis--might be called "unrestricted models" because they attempt to isolate the "pure" effect of serving a disproportionately large share of low-income patients on Medicare's cost per case by taking account of factors thought to influence these costs, regardless of whether they are used in calculating PPS payments. These types of models are typical of the approach health economists have taken for years to explain what determines hospitals' costs. The Health Care Financing Administration also used this approach to estimate the adjustments proposed at the inception of the PPS.

In contrast, CBO's analysis, in 1985 and now, is based on what might be called "restricted" statistical models. These models consider only factors that are actually used in the Prospective Payment System and restrict their effect to that prescribed under current law. For example, a restricted model reflects the fact that hospitals located in Metropolitan Statistical Areas containing 1 million or more people will have PPS rates that are 1.6 percent higher in 1991 than identical hospitals located in smaller MSAs, even though the actual cost difference might be higher.

Note that the model includes the "big city" differential even though the Prospective Payment System in effect in **1987--the** year of the data--did not include this differential. **If CBO** instead used the PPS provisions actually in effect in 1987, the estimates would incorrectly attribute some of the higher costs of patient care that occur in large urban areas to serving a disproportionately high share of low-income patients. If the 1991 adjustment is lower than warranted by cost dif-ferentials that depend on the size of the metropolitan area, however, some of the incorrect attribution will still occur.

Restricted models do not include factors that are not part of the **PPS.** For example, hospitals located in the central cities of **MSAs** may face additional legitimate costs for treating Medicare patients, such as higher wage rates than are paid by hospitals located in the suburbs. An unrestricted model might separate that particular effect from the impact on costs of serving a large share of low-income patients. In con-trast, a restricted model will attribute some or all of this geographic effect to the presence of low-income patients, since the PPS does not distinguish among hospitals located in different parts of metropolitan areas.

In essence, using an estimate from an unrestricted model would represent a decision to base PPS payments on the strictest interpreta-tion of what is meant by the additional cost of serving a large share of low-income patients. On the other hand, using an estimated adjust-ment from a restricted model would compensate hospitals for a host of unspecified factors that are correlated with the disproportionate share index but not otherwise represented in the payment system.

CBO estimated two restricted models for this analysis (see Ap-pendix B for a more detailed description). The first model includes only factors used by the PPS and takes them into account in exactly the way the Congress has legislated for 1991, except that the disproportionate share adjustment is allowed to vary from its current level. The second model is identical to the first, except that both the indirect teaching adjustment and the disproportionate share adjustment are allowed to vary from their legislated values. Consequently, the second analysis simultaneously determines two impacts on Medicare costs--that of teaching programs and that of serving disproportionately many **low-**

income patients. This approach is of particular interest, since the Congress reduced the teaching adjustment when it enacted the disproportionate share adjustment--reflecting the association between them. Moreover, under current law, the teaching adjustment is scheduled to increase to from 7.7 percent to 3.3 percent when the disproportionate share adjustment expires on October 1, 1995.

ALTERNATIVE ESTIMATES OF THE DISPROPORTIONATE SHARE ADJUSTMENT

The disproportionate share adjustment was estimated separately for urban and rural hospitals of different sizes (as measured by number of beds), and for varying levels of the disproportionate share index. The estimated coefficients for urban hospitals with 100 or more beds are displayed in the right-hand two columns of Table 6.1 The coefficients in the first of these columns are those from the first model, in which all other aspects of the payment system are identical to those in 1991 law. The second of these columns of coefficients is based on the second model, in which both the teaching adjustment and the disproportionate share adjustment are allowed to vary from their legislated values. The coefficients can be interpreted as approximate percentage adjustments.

For urban hospitals with 100 or more beds, the estimated disproportionate share adjustment differs somewhat between the two models. In the first model--in which all other aspects are identical to 1991 law--the estimated disproportionate share adjustments are not statistically different from zero except for hospitals with indexes of 55 percent or more. For them, the estimated disproportionate share adjustment is about 5 percent, compared with a minimum of 28 percent under current law. In the second model--under which both the teaching adjustment and the disproportionate share adjustment are allowed to vary from their legislated values--three coefficients are statistically greater than zero, but the estimated adjustments continue to be considerably lower than under current law. For example, the adjustment for hospi-

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1.   In its earlier analysis of the 1981 data, CBO did not find evidence to support a disproportionate share adjustment for urban hospitals with fewer than 100 beds or for rural hospitals. The results for those hoepitale based on the 1987 data--shown in Appendix B, Table B-3--are consistent with the previous finding.

tals with indexes of 35 percent to 45 percent is estimated to be less than 5 percent compared with at least 15 percent under current law. Moreover, the estimated teaching adjustment that lies behind the second model is only 4.6 percent, compared with 7.7 percent under current law.

TABLE 6.   ESTIMATED VALUES FOR THE DISPROPORTIONATE SHARE ADJUSTMENT FOR URBAN HOSPITALS WITH 100 OR MORE BEDS BY DISPROPORTIONATE SHARE INDEX, BASED ON TWO ALTERNATIVE STATISTICAL MODELS

			Statistical Model	
Disproportionate Share Index	Number of Hospitals[a]	Minimum Adjustment Under 1991 Law (Percent)	1991 Law[b]	1991 Law Except for Indirect Teaching Adjustment?[c]
5 ≤ Index < 10	336	0.0	-0.4	0.2
10 ≤ Index < 15	239	0.0	-1.4	-0.8
15 ≤ Index ≤ 20	403	2.5	-1.1	-0.3
		5.5	-1.1	1.4
20 ≤ Index < 35	293	8.7	-1.7	1.1
36 ≤ Index ≤ 45	103	15.2	-0.5	4.6***
46 ≤ Index < 55	56	21.7	0.0	4.9**
Index ≥ 55	77	28.2	5.2*	8.5***

SOURCE: Congressional Budget Office estimates based on 1987 date from Health Care Financing Administration and other sources.

NOTE: Hospitals were grouped in cateeoriee with disproportionate ehare indexes ranging from 5 percent up to (but not including) 10 percent, and so On up to 55 percent or more.

*   Statistically different from zero at the 10 percent level.

**   Statistically different from zero at the 6 percent level.

***   Statistically different from zero at the 1 percent level.

a.   Number of hospitals included in the regression estimate.

b.   This eztimation model assumed that all azpecta of the Prospective Payment System (PPS) except the disproportionate share adjustment are the same as in 1991 law.

c.   This eztimation model assumed that all azpecta of the PPS except the dieproportionate share adjustment and the indirect teaching adjustment are the same as in 1991 law.

POSSIBLE REASONS FOR THE CHANGE IN ESTIMATES
OF THE DISPROPORTIONATE SHARE ADJUSTMENT

At the time the Congress created the disproportionate share adjust-
ment, CBO found convincing statistical evidence for it--based on 1981
data. This positive relationship between service to low-income pa-
tients, as measured by the disproportionate share index, and hospitals'
costs had all but disappeared by 1987. Although no definitive explana-
tion of the change between 1981 and 1987 has been found, several fac-
tors appear to have contributed to this result.

Table 7 shows that costs per case, without adjustments, between
1981 and 1987 increased 54.2 percent for disproportionate share
hospitals, compared with a 60.3 percent increase for nondispropor-

TABLE 7.   TRENDS IN MEDICARE COSTS PER CASE, CASE MIX
            INDEX, AND ADJUSTED COST PER CASE, 1981-1987

Characteristics of Hospitals	Costs per Case	Case Mix Index	Adjusted Cost per Case[a]
All Hospitals	57.9	19.5	32.0
Disproportionate share	54.2	21.5	27.0
Nondisproportionate share	60.3	18.4	35.2
Disproportionate Share[b]			
15 ≤ Index C 20	59.5	22.1	31.1
20 ≤ Index < 25	56.9	23.3	27.6
25 ≤ Index < 35	53.1	22.2	25.3
35 ≤ Index C 45	38.6	20.6	15.1
45 ≤ Index C 55	43.5	16.5	26.2
Index ≥ 55	48.6	13.6	30.4

SOURCE: Congressional Budget Office estimates based on data from the Health Care Financing Ad-
           ministration and other sources.

a.   Cost per case divided by the case mix index.

b.   The index is the disproportionate share index used in calculating the disproportionate share adjust-
      ment. The symbols 15 ≤ Index < 20 indicate hospitals with indexes from 15 percent up to (but not
      including) 20 percent. The symbol Index ≥ 55 indicates hospitals with an index of 55 percent or
      more.

tionate share hospitals--a decrease in relative costs of about 3.8 percent. (The 3.8 percent is the result of the following calculation: (1.542 / 1.603) -1 = -0.038.) Moreover, the increase in costs per case over this period was generally lower for disproportionate share hospitals with higher indexes than for those with lower indexes--for example, costs increased 48.6 percent for disproportionate share hospitals with indexes of 55 percent or more compared with 59.5 percent for disproportionate share hospitals with indexes between 15 percent and 20 percent.

Table 7 also shows how one of the principal adjustments under the PPS--the case mix index, which is designed to measure the average complexity of the cases treated in a hospital--changed between 1981 and 1987. This index rose by 21.5 percent for disproportionate share hospitals, compared with an increase of 18.4 percent for **nondispropor-**tionate share hospitals. Because PPS payments are proportional to the case mix index, this differing growth has the effect of increasing--by about 2.6 percent--payments for disproportionate share hospitals relative to payments for nondisproportionate share hospitals.

The net effect of these two differentials--a 3.8 percent decline in relative costs per case and a 2.6 percent increase in the relative value of the case mix index--is a relative decline of 6.1 percent in adjusted costs per case for the disproportionate share hospitals compared with nondisproportionate share hospitals. This change appears rather modest until it is compared with the increase in their payments resulting from the disproportionate share adjustment--about 9.2 percent. This suggests that the decline in adjusted costs per case for disproportionate share hospitals relative to nondisproportionate share hospitals eliminated most of the difference that was the basis of the disproportionate share adjustment. Trends for big hospitals in urban areas present a similar pattern. Costs per case, adjusted for case mix, increased 26.2 percent for big urban, disproportionate share hospitals, compared with a 32.3 percent increase for big urban, nondisproportionate share hospitals--a decrease in relative adjusted costs of about 4.6 percent.

This analysis, however, does not address a more fundamental question: Have disproportionate share hospitals reduced their costs because of increased **efficiency,** or does their relatively lower cost growth reflect a reduction in quality of care that was imposed by their

financial distress? To the extent that many of the hospitals with high proportions of low-income patients are financially distressed, the inability to increase revenues may have necessitated changes in operations that went beyond efficiency and adversely affected the quality of care. If so, the 198'7 data cannot be used to estimate the true relationship between costs of providing the same quality care and proportions of low-income patients. Available data do not, however, permit examining quality-adjusted costs or variations in quality by characteristics of hospitals.

OPTIONS FOR THE DISPROPORTIONATE
SHARE ADJUSTMENT

The two justifications for the disproportionate share adjustment--the higher costs of treating Medicare patients and the lower margins of some hospitals--suggest very different responses to the statistical analyses of the 1987 cost data. On the one hand, these analyses indicate that substantially reducing the disproportionate share adjustment would better align Prospective Payment System payments with the costs now associated with treating low-income patients. But a look at the PPS margins and overall margins shows that the disproportionate share adjustment is an important contributor to the continued **financial** viability of some hospitals.

If the statistical analysis of costs was used as the primary guide to policy, the Congress might consider the following options:

o   *Option 1*: Eliminate almost all the disproportionate share adjustment, retaining only a reduced adjustment for big (100 or more beds) urban hospitals with indexes of 55 percent or more. For these hospitals, the adjustment would be 5 percent--compared with a minimum adjustment of 28.2 percent under current law.

o   *Option 2:* Target a substantially reduced disproportionate share adjustment to big hospitals in urban areas with indexes of 20 percent or more as shown below, and reduce the teaching adjustment from 7.7 percent to 4.6 percent:

Value of Index (Percent)	Adjustment (Percent)
20 to 34	1
35 to 54	5
55 or More	9

Alternatively, if the concern about margins was the primary basis for policy, the Congress might consider the following options:

o   *Option 3:* Retain the current-law disproportionate share adjustment for hospitals with indexes of 35 percent or more. (About 93 percent of the payments would to go to big hospitals in urban areas, compared with about 96 percent under 1991 law.)

o   *Option 4:* Retain the current disproportionate share adjustment.

The level of the disproportionate share adjustment in the first two options corresponds roughly to the coefficients estimated from the two statistical models. The first option would retain a 5 percent adjustment only for big hospitals in urban areas with indexes of 55 percent or more, corresponding to the estimates from the first statistical model, in which all aspects of the payment system except the disproportionate share adjustment are identical to 1991 law. In that model, the estimated adjustment for other categories of hospitals was not statistically different from zero. The adjustments under the second option are consistent with the estimated coefficients using the second model, in which both the indirect teaching and the disproportionate share adjustment are allowed to vary from their legislated values. A statistically significant relationship was observed between costs and the level of the index only for hospitals in the higher categories of the index.

The last options are consistent with the second justification for having a disproportionate share adjustment--reducing financial distress for hospitals with large shares of low-income patients. The third option would retain the current level of the adjustment for hospitals with indexes of 35 percent or more--for which the simulated 1987 overall margins were considerably below those for other hospitals--but would eliminate the adjustment for hospitals with indexes lower than 35 percent, which had simulated 1987 margins similar to those of other

hospitals.1 The fourth option of retaining the current adjustment would also be consistent with the second justification, because any reduction would add to the financial distress of hospitals that serve a disproportionately large **share** of low-income patients.

THE IMPACT OF ALTERNATIVE OPTIONS ON TOTAL PAYMENTS UNDER THE PROSPECTIVE PAYMENT SYSTEM

If the disproportionate share adjustment was reduced, the Congress would have to decide whether to return the savings to all hospitals in some way (such as raising the basic payment rates) or to use some or all of the savings for another purpose (such as deficit reduction). The former approach would be in keeping with the original financing of the disproportionate share adjustment, which lowered payment rates for all hospitals as well as the indirect teaching adjustment, rather than increasing total outlays. In this case, there would be no change in total PPS payments. The alternative approach would permit a reallocation of federal spending priorities or a lower deficit. The remainder of this section describes the reduction in total payments to hospitals that would occur if the savings were used for some other purpose.

If Option l--eliminate the disproportionate share adjustment except for big urban hospitals with indexes of 55 percent or more--was carried out at the beginning of fiscal year 1991, first-year savings would be $1.3 billion and cumulative savings over the **1991-1995** period would be $8.8 billion (see the first panel of Table 8). If, instead, the disproportionate share adjustment was gradually cut to this level during a five-year period, in order to give hospitals time to adjust to the reduction, the savings would be $260 million in the first year and $5.5 billion over the five-year period.

If Option **2--target** a substantially reduced disproportionate share adjustment to hospitals with indexes of 20 percent or more and lower

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1.   **Nondisproportionate share hospitals would have had an estimated average overall margin in 1987 of 4.4 percent compared with 1.2 percent, 0.4 percent, and 0.0 percent for the three categories of hospitals with the highest indexes. The three categories of hospitals with the lowest indexes would have had estimated average overall margins of 3.7 percent, 4.1 percent, and 5.0 percent, respectively.**

the teaching adjustment to 4.6 percent--was carried out at the begin-
ning of 1991, the savings would be $2.0 billion in 1991 and $13.8 bil-
lion over the 1991-1995 period (see the second panel of Table 8). Al-
ternatively, if the two adjustments were gradually reduced over five
years, the first-year savings would be $400 million and the five-year
savings would be $8.6 billion.

If Option 3--retain the disproportionate share adjustment at the
current level only for hospitals with indexes of 35 percent or more--was

TABLE 8.   BUDGET SAVINGS FROM THREE OPTIONS THAT WOULD
            REDUCE THE DISPROPORTIONATE SHARE ADJUSTMENT
            (By fiscal year, in millions of dollars)

	1991	1992	1993	1994	1995	Cumulative Five-Year Savings
Option 1: Essentially Eliminate the Disproportionate Share Adjustment						
Immediate Elimination	1,300	1,600	1,800	1,950	2,150	8,850
Gradual Elimination	260	610	1,050	1,550	2,100	5,550
Option 2: Target a Reduced Disproportionate Share Adjustment and Cut the Indirect Teaching Adjustment						
Immediate Reduction in Both Adjustments	2,000	2,550	2,800	3,050	3,350	13,750
Gradual Reduction in Both Adjustments	400	950	1,600	2,400	3,250	8,600
Option 3: Retain the Disproportionate Share Adjustment for Hospitals with Indexes of 35 Percent or More						
Immediate Elimination for Hospitals With Low Indexes	730	920	1,000	1,100	1,200	5,000
Gradual Elimination for Hospitals With Low Indexes	150	350	580	870	1,200	3,150

SOURCE: Congressional Budget Office estimates.

carried out immediately, the savings would be $730 million in 1991 and $5.0 billion over the 1991-1995 period (see the third panel of Table 8). Alternatively, if the disproportionate share adjustment was gradually eliminated over five years for hospitals with indexes under 35 percent, the first-year savings would be $150 million and the five-year savings would be $3.1 billion.

If the disproportionate share adjustment was continued as under current law--the fourth option--there would, of course, be no savings.

THE IMPACT OF ALTERNATIVE OPTIONS ON HOSPITALS

The remainder of this paper examines the impacts on hospitals of the four options, assuming that all the savings from the three options examined here were used to reduce the federal budget deficit or to finance other programs not related to hospital payments under the PPS. This assumption was made to simplify the exposition. Appendix C presents the corresponding analysis under the assumption that the savings would be returned to the hospitals by raising the basic PPS payment rates to keep total PPS payments constant. Although the specific estimates vary, the general patterns of impacts on hospitals would be the same.

Most groups of hospitals would receive lower PPS payments under Option 1, which would retain a substantially reduced adjustment only for big urban hospitals with indexes of 55 percent or more, because most of the groups contain at least **a few** disproportionate share hospitals (see Table 9). Total PPS payments would fall by 3.1 percent--the average of a 7.6 percent cut for disproportionate share hospitals and no change for nondisproportionate share hospitals. Disproportionate share hospitals with indexes less than 20 percent would lose, on average, only 3.4 percent of payments, while disproportionate share hospitals with indexes of 55 percent or more would lose an average of 16.7. percent.

TABLE 9.   ESTIMATED CHANGE IN PROSPECTIVE PAYMENT
             SYSTEM PAYMENTS TO HOSPITALS UNDER THREE
             OPTIONS THAT WOULD REDUCE THE DISPROPORTIONATE
             SHARE ADJUSTMENT, IF SAVINGS WERE NOT RETURNED
             TO HOSPITALS (As a percentage of total payments under
             1991 law, fiscal year 1991)

Characteristics of Hospitals	Number of Hospitals	Option 1	Option 2	Option 3
All Hospitals				
All Hospitals	5,737	-3.1	-4.9	-1.8
Urban	3,109	-3.5	-5.5	-2.0
Rural	2,628	-0.8	-1.1	-0.3
Teaching	1,191	-4.1	-7.6	-2.3
Nonteaching	4,546	-2.1	-1.9	-1.2
Disproportionate Share	1,577	-7.6	-9.8	-4.3
Nondisproportionate Share	4,160	0.0	-1.4	0.0

SOURCE: Congressional Budget Office estimates based on data from Health Care Financing Ad-
           ministration and other sources,

NOTES: Option 1: Eliminate almost all of the disproportionate share adjustment, retaining only a
              reduced adjustment for big urban hospitals (100 or more beds) with indexes of 55
              percent or more. For these hospitals, the adjustment would be 5 percent--compared
              with a minimum adjustment of 28.2 percent under 1991 law.

          Option 2: Target a substantially reduced disproportionate share adjustment to big urban hos-
              pitals with the highest indexes as shown below, and reduce the teaching adjustment
              from 7.7 percent to 4.6 percent:

Value of Index (Percent)*	Adjustment (Percent)
$20 \leq$ Index < 35	1
$35 \leq$ Index < 55	5
Index ≥ 55	9

          Option 3: Retain the 1991 law disproportionate share adjustment only for hospitals with in-
              dexes of 35 percent or more.

(Continued)

TABLE 9.   (Continued)

Characteristics of Hospitals	Number of Hospitals	Option 1	Option 2	Option 3
Disproportionate Share Hospitals				
15 ≤ Index < 20[a]	405	-3.4	-5.6	-3.4
20 ≤ Index < 25	238	-5.9	**-8.8**	-5.9
25 ≤ Index < 35	247	-9.0	-12.0	-9.0
				0.0
35 ≤ Index ≤ 45	288	-12.2	-13.9	**0.0**
Index ≥ 55	259	-16.7	-17.7	**0.0**
Urban				
Fewer than 100 beds	86	-4.7	-5.0	0.0
100 or more beds	1,108	-7.7	-10.1	-4.4
Rural	333	-5.4	- 5.8	-1.9
Teaching	597	-7.7	-11.5	-4.3
Nonteaching	980	-7.3	-6.5	-4.3
Special Groups				
MSA > 1 million[b]	574	-8.8	-11.8	-4.2
Urban government	225	-10.0	-14.0	-3.9
Rural referral center[c]	28	-7.8	-9.0	-4.4

a.   The index ie the disproportionate **share** index **used** in calculating the dieproportionate **share** adjust, ment. The symbols 15 ≤ Index < 20 indicate hospitals with indexes from 15 percent up **to** (but not including) 20 percent. The symbol Index ≥ 55 indicates hoepitale with en index of 55 percent or more.

b.   MSA > 1 million refers to a Metropolitan Statistical Area (MSA) containing more than 1 million people (970,000 people in New England).

c.   Rural referral centers are rural **hospitals** that have certain characteristics in common with urban **hospitals**. Their **PPS** payments are **based** *on* the **basic** rate for hospitals in other urban areas. Rural referral **centers** that are also sole community **hospitals** are included in the sole community category (not **shown** in this table).

CBO also simulated the effects of the options on 1987 PPS margins (see Table 10 on page 38). Option 1 would have cut the average PPS margin in 1987 from an estimated 5.9 percent under 1991 law to an estimated 3.0 percent. As a result, both disproportionate share and nondisproportionate share hospitals would have had roughly the same average PPS margins--3.0 percent and 2.9 percent, respectively. Nonteaching hospitals and disproportionate share hospitals in large Metropolitan Statistical Areas would do worse than average under this option, with average PPS margins of 1.9 percent and 2.1 percent, respectively. Nonteaching disproportionate share hospitals (which would have had an average margin of 0.9 percent) would have been particularly badly affected.

The average overall margin of hospitals would have been lowered by less than the average PPS margin under Option l--reducing it to an estimated 3.1 percent from an estimated 3.9 percent under 1991 law (see Table 11 on page 40). In contrast, even though the overall margin for disproportionate share hospitals would have remained positive at 1.5 percent, hospitals with indexes of 35 percent or more would have had losses in 1987. These losses were estimated to have ranged from **1.6** percent for hospitals with indexes between 35 percent and 45 percent to 2.9 percent for hospitals with indexes of 55 percent or more, compared with zero or positive margins under current law.

Under Option 2--target the disproportionate share adjustment to big urban hospitals and reduce both the disproportionate share and the teaching adjustments--almost all categories of hospitals would be more adversely affected than would be the case from simply eliminating the disproportionate share adjustment for most current recipients (see the next-to-last column of figures in Table 9). Disproportionate share hospitals would, on average, receive 9.8 percent less, while all other hospitals would receive an average of 1.4 percent less. Only nondisproportionate share hospitals without teaching programs--which account for about one-third of total PPS payments--would not be affected by this option, and only hospitals without teaching programs would fare better, on average, under Option 2 than under Option 1.

PPS margins in 1987 would have fallen to an estimated average of **1.2** percent under Option 2, from an estimated 5.9 percent under 1991

law (see Table 10). Disproportionate share hospitals would have done worse, on average, under this option than nondisproportionate share hospitals: their estimated average PPS margins would have been 0.6 percent and 1.6 percent, respectively. Disproportionate share hospitals with teaching programs would have done worse than disproportionate share hospitals without such programs: an estimated 0.0 percent average PPS margin, compared with 1.7 percent. Three categories of disproportionate share hospitals would have had negative PPS margins under this option. Hospitals with indexes between 20 percent and 25 percent would have had an estimated average margin of -0.1 percent, disproportionate share hospitals in large **MSAs** would have had an estimated average margin of -1.0 percent, and disproportionate share urban government hospitals would have had an estimated average margin of -1.4 percent.

Overall margins under Option 2 would have been reduced to an estimated average of 2.7 percent from 3.9 percent under 1991 law (see Table 11 on page 40). Although disproportionate share hospitals would have done worse, on average, under this option compared with **nondis**-proportionate share hospitals--estimated overall margins of 1.0 percent and **4.1** percent, respectively-disproportionate share hospitals with indexes below 35 percent would have had overall margins only moderately below 'the average for nondisproportionate share hospitals. **In** contrast, hospitals with indexes of 35 percent or more would have had negative overall margins. Disproportionate share hospitals that have teaching programs would have had a much lower than average overall margin of 0.5 percent.

Option **3--retain** the disproportionate share adjustment only for hospitals with indexes of 35 percent or more--would cut total PPS payments by 1.8 percent: the average of a 4.3 percent cut for disproportionate share hospitals and no change for nondisproportionate share hospitals (see the last column of Table 9). Disproportionate share hospitals with indexes less than 20 percent would lose, on average, 3.4 percent of payments; hospitals with indexes between 20 percent and 25 percent would lose 5.9 percent; and hospitals with indexes between 25 percent and 35 percent would lose 9.0 percent of PPS payments. Disproportionate share hospitals with indexes of 35 percent or more would, of course, have no change in their PPS payments.

TABLE 10.   ESTIMATED 1987 PROSPECTIVE PAYMENT SYSTEM
MARGINS FOR HOSPITALS UNDER 1991 LAW AND
UNDER THREE OPTIONS THAT WOULD REDUCE THE
DISPROPORTIONATE SHARE ADJUSTMENT, IF
SAVINGS WERE NOT RETURNED TO HOSPITALS
(In percent)

Characteristics of Hospitals	1991 Law	Option 1	Option 2	Option 3
All Hospitals				
All Hospitals	5.9	3.0	1.2	**4.2**
Urban	5.7	2.4	0.3	3.8
Rural	7.0	6.3	6.0	6.8
	7.8			
Teaching	**3.9**	4.0	0.3	5.6
Nonteaching		1.9	2.1	2.7
Disproportionate Share	10.2	3.0	0.6	6.2
Nondisproportionate Share	2.9	2.9	1.6	2.9

SOURCE: Congressional Budget Office estimates based on data for 1987 from the Health Care Financing Administration and other sources.

NOTES: Option 1:   Eliminate almost all of the disproportionate share adjustment, retaining only a reduced adjustment for big urban hospitals (100 or more beds) with indexea of 55 percent or more. For these hospitals, the adjustment would be 5 percent--compared with a minimum adjustment of 28.2 percent under 1991 law.

Option 2:   Target a substantially reduced disproportionate share adjustment to big urban hospitals with the highest indexes as shown below, and reduce the teaching adjustment from 7.7 percent to 4.6 percent:

Value of Index (Percent)*	Adjustment (Percent)
20 $\leq$ Index $<$ 35	1
35 $\leq$ Index $<$ 55	5
Index $\geq$ 55	9

Option 3:   Retain the 1991 law disproportionate share adjustment only for hospitals with indexes of 35 percent or more.

The Prospective Payment System operating margin is defined as: (PPS payments - PPS operating costs)/(PPS payments).

TABLE 10.   (Continued)

Characteristics of Hospitals	1991 Law	Option 1	Option 2	Option 3
Disproportionate Share Hospitals				
15 ≤ Index < 20[a]	5.5	2.2	0.0	2.2
20 ≤ Index < 25	8.6	2.9	-0.1	2.9
25 ≤ Index < 35	12.8	4.2	1:o	4.2
35 ≤ Index c 45	16.3	2.5	2.8	16.3
45 ≤ Index < 55	16.4	2.2	1.4	16.4
Index ≥ 55	18.3		1.7	18.3
'Urban				
Fewer than 100 beds	10.8	6.4	6.1	10.8
100 or more beds	10.0	2.7	0.2	5.8
Rural	13.0	8.0	7.6	11.3
Teaching	11.3	4.1	0.0	7.3
Nonteaching	8.1	0.9	1.7	4.0
Special Groups:				
MSA > 1 million[b]	10.6	2.1	-1.0	6.5
Urban government	12.1	3.1	-1.4	8.2
Rural referral center[c]	14.3	7:o	5.7	10.5

a.   The index ie the disproportionate share index used in calculating the disproportionate share adjust-ment. The symbols 15 ≤ Index < 20 indicate hospitals with indexes from 15 percent up to (but not including) 20 percent. The symbol Index ≥ 55 indicates hospitals with an index of 55 percent or more.

b.   MSA > 1 million refers to a Metropolitan Statistical Area (MSA) containing more than 1 million people (970,000 people in New England).

c.   Rural referral centers are rural hoepitala that have certain characteristics in common with urban hospitals. Their PPS payments are baaed on the basic rate for hospitals in other urban areas. Rural referral centers that are also sole community hospitals are included in the sole community category (not shown in this table).

TABLE 11.   ESTIMATED 1987 OVERALL MARGINS FOR HOSPITALS
            UNDER 1991 LAW AND UNDER THREE OPTIONS THAT
            WOULD REDUCE THE DISPROPORTIONATE SHARE
            ADJUSTMENT, IF SAVINGS **WERE** NOT RETURNED TO
            HOSPITALS (In percent)

Characteristics of Hospitals	1991 Law	Option 1	Option 2	Option 3
All Hospitals				
All Hospitals	3.9	3.1	2.7	3.5
Urban	3.7	2.9	2.4	3.2
Rural	5.1	4.9	4.8	5.0
Teaching	**3.2**	2.3	**1.4**	2.7
Nonteaching	**4.8**	4.2	**4.3**	4.4
Disproportionate Share	3.3	1.5	1.0	2.3
Nondisproportionate Share	4.4	4.4	4.1	4.4

SOURCE: Congressional Budget Office estimates based on data for 1987 from the Health Care Financing Administration and other sources.

NOTES: **Option 1:**   Eliminate almost all of the dieproportionate share adjustment, retaining only a reduced adjustment for big urban hospitals (100 or more beds) with indexes of 55 percent or more. For these hospitals, the adjustment would be 5 percent-compared with a minimum adjustment of 28.2 percent under 1991 law.

          Option 2:   Target a substantially reduced disproportionate share adjustment to big urban hospitals with the highest indexes as shown below, and reduce the teaching adjustment from 7.7 percent to 4.6 percent:

Value of Index (Percent)[a]	Adjustment (Percent)
20 ≤ Index < 35	1
35 ≤ Index < 55	5
Index ≥ 55	9

          Option 3:   Retain the 1991 law dieproportionate share adjustment **only** for hospitals with indexes of 35 percent or more.

          The overall margin is defined as: (Total revenue - Total costs)/(Total revenue).

                                                                      (Continued)

TABLE 11.   (Continued)

Characteristics of Hospitals	1991 Law	Option 1	Option 2	Option 3
Disproportionate Share Hospitals				
15 ≤ Index < 20[a]	3.7	2.9	2.3	2.9
		2.7	2.0	2.7
20 ≤ Index < 35	4.0	2.9	2.2	2.9
35 ≤ Index < 45	1.2	-1.6	-2:o	1.2
45 ≤ Index < 55	0.4	-2.8	-3.0	0.4
Index ≥ 55	0.0	-2.9	-3.0	0.0
Urban				
Fewer than 100 beds	-2.4	-3.5	-3.6	-2.4
100 or more beds	3.1	1.4	0.8	2.1
Rural	6.7	5.2	5.1	6.2
Teaching	3.0	1.4	0.5	2.1
Nonteaching	3.9	1.8	2.1	2.7
Special Groups:				
MSA > 1 million[b]		0.0	-0.7	0.9
	1.9	1.1		2.0
Rural referral center[c]	7.9	5.8	6.4	6.8

a. The index is the disproportionate share in&x used in calculating the disproportionate share adjust-ment. The symbols 15 ≤ Index < 20 indicate hospitals with indexes from 15 percent up to (but not including) 20 percent. The symbol Index ≥ 55 indicates hospitals with **an** index of 55 percent or more.

b. MSA > 1 million refers to a Metropolitan Statistical Area **(MSA)** containing more than 1 million people (970,000 people in New England).

c. Rural referral centers are rural hospitals that have certain characteristics in common with urban hospitals. Their PPS payments are based on the basic rate for hospitals in other urban areas. Rural referral centers that are also sole community hospitals are included in the sole community category (not shown in this table).

The average PPS margin in 198'7 under Option 3 would have fallen to an estimated 4.2 percent from 5.9 percent under 1991 law (see Table 10). Disproportionate share hospitals (with an estimated average of 6.2 percent) would have continued to have higher PPS margins than nondisproportionate share hospitals (with an estimated average of 2.9 percent). Hospitals with indexes of 35 percent or more would have continued to have extremely high average PPS margins--over 16 percent-- under this option.

Overall margins in 1987 would have been reduced from an estimated average of 3.9 percent under 1991 law to an estimated average of 3.5 percent under Option 3. Although disproportionate share hospitals would have done worse, on average, under this option compared with nondisproportionate share hospitals--with estimated overall margins of 2.3 percent and 4.4 percent, respectively--disproportionate share hospitals with indexes of 35 percent or more would have been unaffected. The three affected categories of disproportionate share hospitals (with indexes under 35 percent) would have continued to have average margins well above those for the three categories of hospitals with the highest indexes, but these margins would still have been below the levels of other hospitals. The estimated average margins for the three categories of hospitals with the lowest indexes would have been 2.9 percent, 2.7 percent, and 2.9 percent, respectively--compared with 4.4 percent for nondisproportionate share hospitals and 1.2 percent, 0.4 percent, and 0.0 percent for the three categories of hospitals with the highest indexes.

Option 4--retain the current disproportionate share adjustment-- would have resulted in no change in PPS payments, PPS margins, or overall margins. For that reason, the effect of this option on **PPS** payments (which would have been a column of zeroes) is not shown in Table 9. Margins under Option 4 appear in Tables 10 and 11 because they would be the same as those in the column labeled "1991 Law."

Whether PPS margins or total margins should be the chief concern depends on which justification underlying the disproportionate share adjustment is deemed to be more important. On the one hand, setting Medicare payment policies to ensure that the PPS reflects the current costs of treating Medicare patients would provide incentives ffor **hos-**

pitals to continue participating in the Medicare program and to provide services efficiently. This approach would generate approximately the same level of PPS margins at all types of hospitals, unless there were systematic differences in their efficiency or quality of care. On the other hand, rates based on current costs may not be sufficient to enable financially distressed hospitals to provide the same quality of care they had in past years. Moreover, setting Medicare's payment policies to ensure that hospitals with large shares of low-income patients have high enough overall margins to survive--that is, so that overall margins are not negative--would protect access to hospital services for certain low-income populations, including' Medicare enrollees living in those areas.

APPENDIXES

APPENDIX A

MEDICARE'S PROSPECTIVE

PAYMENT SYSTEM

In 1983, the Congress changed Medicare's system of paying for in-patient hospital services **from** a retrospective, cost-based reimbursement system to the Prospective Payment System. In making this change, it believed the new system would alleviate two serious problems caused by Medicare's previous cost-based reimbursement system: **inefficiency** and lack of budget control.

The first section of this Appendix provides a general description of the PPS. The next section shows how payment for a specific hypothetical case would be determined under the PPS. The final section shows how payments under the PPS are distributed among different categories of hospitals.

DESCRIPTION OF THE PPS

Medicare's PPS removed cost-based reimbursement for about 85 percent of hospitals and replaced it with a predetermined payment for each Medicare patient that varies depending on the patient's diagnosis, the hospital's location, and certain other hospital characteristics. The PPS is designed to cover all inpatient operating costs, which include the costs of routine, ancillary, and special care services. In contrast, payments for capital expenses and direct medical education costs, as well as for bad debt attributable to Medicare patients, are still determined retrospectively based on actual costs.

In practice, the PPS begins with a set of three standardized amounts calculated separately for hospitals in large urban areas-- defined as Metropolitan Statistical Areas **(MSAs)** with populations greater than **1,000,000** (970,000 in New England); for hospitals in other urban areas; and for hospitals in rural areas. These amounts are then multiplied by diagnosis-related group **(DRG)** weights that reflect

typical costs associated with the patient's specific diagnosis. Additional payments are made for cases that involve especially long hospital stays or that are extremely expensive. Finally, the payment is adjusted for differences in area wage levels, the additional indirect costs of patient care in hospitals that have teaching programs, and costs related to treating a disproportionately large share of low-income patients.

Special rules apply to sole community and Medicare-dependent hospitals. These hospitals receive the higher of the following amounts: the federal PPS rate described above; a hospital-specific payment based on 1982 costs updated to the present; or a hospital-specific payment based on 1987 costs updated to the present.

Standardized Amounts

During the first four years under the system, the DRG rates were based on a combination of each hospital's actual costs in a previous period, regional rates, and national rates. For accounting periods beginning in fiscal year 1988 and later, payments were based only on national rates for most hospitals. Exceptions from fully national rates are made for urban hospitals in two Census divisions--New England and East North Central--and rural hospitals in four divisions--the same two as for urban hospitals, as well as the Middle Atlantic and South Atlantic divisions. In these areas, hospitals' payments are to be based on a blend of 85 percent national rates and 15 percent regional rates.

The three standardized amounts are the system's base prices per discharge--one each for hospitals located in large urban areas, for hospitals located in other urban areas, and for hospitals located in rural areas. (Rural referral centers, although located in rural areas, receive the same standardized amount as hospitals located in other urban areas.) Each amount is calculated as a discharge-weighted average of hospitals' costs per Medicare case in 1981, updated to the current period and "standardized." Costs per case are standardized to remove the effects of what are considered explainable and unavoidable differences in costs among hospitals arising from differences in the mix of

cases among **DRGs** (measured by a hospital's case mix index), local wage levels, the indirect costs of patient care associated with the presence of teaching programs, and costs attributable to serving a disproportionately large share of low-income patients.

The standardized amounts are also based separately on two categories of historical costs, labor and nonlabor, with the former accounting for about 75 percent of the total. The national standardized amounts for 1990 are as follows (in dollars):

	Labor	**Nonlabor**	Total
Large Urban Area	2,508	888	3,396
Other Urban Area	2,468	874	3,342
Rural Area	2,433	674	3,107

Thus, before taking account of differences in case mix, area wage levels, and other factors, a hospital in a large MSA received about $290 more for each discharge than a rural hospital.

DRG Weights

A key component of the PPS rates is a set of weights that reflect the relative resource intensity, or costliness, of providing care to Medicare patients in each of the 474 **DRGs.** Although discharges may be classified into 477 different diagnosis related groups, only 474 have payment rates associated with them; DRG numbers 469 and 470 represent cases that could not easily be placed in another DRG category, and DRG number 438 has been discontinued.

A hospital's standardized amount is multiplied by the appropriate DRG weight to get the payment applicable to a specific admission (before other adjustments). For example, DRG 103--a heart transplant--has a weight of 13.2352 for fiscal year 1990. A hospital located in a large MSA would receive about $45,000 for this complicated procedure (before other adjustments described below)--that is, more than 13 times the standardized amount for hospitals in large urban areas. In this way, a hospital receives payment for each discharge reflecting, on

average, the cost of that specific type of case, as well as the type of geo-graphic area in which the hospital is located.

Payments for "Outliers"

Payments under the PPS are based on average amounts. As a result, the payment for a specific discharge is not usually identical to the actual costs incurred for that case. Ordinarily, an individual Ihospital bears the burden of the cost difference: it keeps the excess or makes up the shortfall. Certain cases, however, may involve extraordinarily long hospital stays or exceptionally high costs relative to the average for the appropriate DRG. For these cases--referred to as "outliers"--the PPS has special payments.

Medicare pays for two types of outliers: "day" outliers and "cost" outliers. Day outliers are those cases with much longer stays than typical for the specific DRG. Cost outliers are cases with extremely high costs relative to the typical payment for the DRG. The thresholds that determine which cases are outliers--that is, the length of stay or the cost--are set so that outlier payments account for approximately 5 percent to 6 percent of total PPS payments. The urban and rural stan-dardized amounts are reduced by the appropriate percentage so that outlier payments are, in effect, financed by all hospitals of the type that actually receives them. Because large urban hospitals are much more likely than rural hospitals to receive outlier payments, for exam-ple, the fiscal year 1990 standardized amount for large urban hospitals was reduced by 5.6 percent, compared with a 2.2 percent cut for the rural standardized amount.

Adjustments

These amounts--that is, the hospital's standardized amount multiplied by the DRG's weight--are then adjusted to take account of a variety of factors. The amounts are adjusted by applying a wage index for the area in which the hospital is located. This index is designed to measure the average wages paid by hospitals in that locality compared with the national average of hospitals' wages. The geographic areas

used for urban hospital wages are Metropolitan Statistical Areas; those for rural hospitals are all non-MSA areas within a state. Wage indexes are calculated for 364 areas--316 **MSAs** and 48 rural areas (Rhode Island **and New** Jersey do not contain any areas outside of **MSAs).** The wage index is only applied to the labor portion of the standardized amount.

Hospitals with approved medical education programs receive additional amounts based on the ratio of the number of residents to the number of beds **(IRB).** Specifically, rates are increased by 7.7 percent for each 10 percent increase in the hospital's IRB.

Since May 1986, Medicare's PPS rates have included an adjustment that provides additional payments to hospitals having a disproportionately large share of low-income patients. This "disproportionate share" adjustment was intended to compensate hospitals for higher costs that may be associated with treating low-income patients. Because some hospitals that receive disproportionate share adjustments are financially distressed and at risk of closure, the adjustment also helps to maintain access to care for some Medicare beneficiaries.

CALCULATING A PROSPECTIVE PAYMENT SYSTEM PAYMENT FOR A HYPOTHETICAL HOSPITAL

Table A-l shows how the prospective payment would be computed for a specific admission--in this example, a pulmonary embolism--to a hypothetical hospital located in a large urban area. The first panel states that the illustrative discharge is for a pulmonary embolism with a DRG weight of 1.4320. The second panel shows that this hypothetical hospital has 300 beds, 30 interns and residents, and a rather high index of low-income patients (40 percent). Its wage index of 1.0843 indicates that it is located in an area with higher-than-average wages--about 8 percent higher. The next panel shows that the 1990 standardized amounts for a hospital located in a large urban area are $2,508 for labor and $888 for nonlabor. The final panel shows how to calculate the prospective payment for a pulmonary embolism at this hypothetical hospital.

TABLE A-l.   CALCULATING THE PPS PAYMENT FOR A
HYPOTHETICAL HOSPITAL IN CHICAGO

Hypothetical Case

DRG 78 (Pulmonary Embolism)
Discharged on April **18, 1990**
PPS Weight   1.4320

Hypothetical Hospital's Characteristics

Number of Beds	300
Number of Interns and Residents	30
Index of SSI and Medicaid Patients (Percent)	40
Area Wage Index	1.0843

1990 PPS Standardized Amounts for Hospitals Located in Large **MSAs** (Dollars)

Labor (Unadjusted)	2,508
Nonlabor (Unadjusted)	888

Calculation of PPS Payment (Dollars)

Labor (Unadjusted)	2,508
Labor (Adjusted--LO843 x 2,508)	2,719
Nonlabor (Unadjusted)	__888__
Total Labor and **Nonlabor**	3,607
Payment for DRG 78 (1.4320 x 3,607)	5,166
Adjustments	
Indirect teaching (0.0744 x 5,166)	384
Disproportionate share (0.1849 x **5,166)**a	__955__
Total Payment (5,166 + 384 + 955)	6,505

SOURCE: **Congressional** Budget **Office** calculations of a hypothetical hospital's payment for one **diagnosis** related group under the Prospective Payment System.

NOTE: **MSA** = Metropolitan Statistical Area

a.   **As described** in Table 2. the disproportionate **share** adjustment is calculated **as** follows: 18.49 = 5.62 + 0.65 (40.0 - 20.2).

The total PPS payment of $6,505 for this discharge is calculated in five steps:

o   The standardized amount for labor ($2,508) is multiplied by the area wage index of 1.0843, yielding an adjusted labor amount of $2,719;

o   The adjusted labor amount ($2,719) is added to the **nonlabor** amount **($888),** yielding a payment, adjusted for the wage index, of $3,607;

o   The amount for the specific diagnosis--pulmonary embolism--is calculated as the product of the DRG weight (1.4320) times the payment adjusted for the wage index **($3,607),** resulting in a payment before other adjustments of $5,166;

o   This hospital's resident-to-bed ratio would entitle it to a 7.44 percent adjustment, or $384 for this DRG, for indirect teaching costs; and

o   Finally, the hospital would receive 18.49 percent more, or an additional **$955,** because it serves a large share of low-income patients--its index of Medicaid and SSI patients is 40 percent.1

The resulting total PPS payment is $6,505, about twice the sum of the standardized amounts for labor and nonlabor.

COMPARING PPS PAYMENTS AMONG HOSPITALS

Although calculating the payment for a specific discharge helps illustrate how PPS works, it does not provide any information on the

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1.   The index ie defined **as** the sum of two ratios. The first ratio is the proportion of all Medicare patient **days** that are attributable to **beneficiaries** of Supplemental Security Income **(SSI),** a **means-tested** cash benefit program for the elderly and disabled. **The** second ratio **is** the proportion of all patient **days** for which Medicaid **is** the **primary** payer.

TABLE A-2. **MEAN AND PERCENTILE DISTRIBUTION OF PAYMENTS UNDER THE PROSPECTIVE PAYMENT SYSTEM FOR A STANDARDIZED CASE BY CATEGORY OF HOSPITAL (In dollars incurred in fiscal year 1991)**

Category of Hospital	Average Cost per Case[a]	Percentiles of Hospitals				
		5th	25th	50th	75th	95th
All	3,857	2,563	2,825	**3,342**	**3,893**	**5,192**
Urban	4,106	3,087	3,453	3,778	4,324	5,676
Rural	2,943	2,492	**2,665**	**2,807**	2,993	3,774
MSA >1 Million[b]	4,459	3,335	3,730	4.108	4,656	6,283
Other Urban	3,732	3,006	3,317	**3,520**	**3,840**	4,680
Sole Community[c]	3,389	2,630	2,867	3,185	3,668	5,251
Rural Referral[d]	3,148	2,811	2,946	**3,085**	3,220	3,602
Other Rural	2,780	2,474	2,617	2,712	2,878	3,302
Major **Teaching**[e]	5,658	4.404	4,959	5,579	6,350	8,129
Other Teaching	4,054	2,986	**3,595**	3,981	**4,398**	5,382
Nonteaching	3,451	2,556	2.722	3,139	3.613	4,545
Disproportionate Share						
MSA > 1 million[b]	5,127	3,624	4,150	4,740	5,528	7,193
Other urban	3,926	3.137	3.445	3,703	4,148	5.446
Rural	2,946	2,557	2,659	2.731	3,001	3,981
Nondisproportionate Share	3,589	2.540	2,755	**3,192**	3,668	4,514
New England	4,182	2,878	3,443	**3,845**	**4,234**	5,073
Middle Atlantic	4,328	1,893	**3,270**	3,749	4,541	6,626
South Atlantic	3,515	2,593	2,766	3,212	3,567	4,475
East North Central	3,875	2,719	2,937	**3,462**	3,871	5,128
West North Central	3,513	2,586	2,674	**2,888**	3,386	4,129
East South Central	3,208	2,457	2,537	2,715	**3,244**	3,826
West South Central	3,489	2,504	**2,656**	3,088	3,579	4,385
Mountain	**3,698**	2,825	**2,853**	3,131	3,677	4,805
Pacific	4,516	3,193	**3,740**	**4,262**	4,706	**6,065**

SOURCE: Congressional Budget Office simulations baaed on Medicare cost report files.

NOTE: The Prospective Payment System (PPS) payment for a standardized case was computed by adjusting the PPS payment per case by the average case mix index-that is, the average diagnoeie-related-group weight--for each hospital.

(Continued)

TABLE A-2.   (Continued)

Category of Hospital	Average Cost per Case[a]	Percentiles of Hospitals				
		5th	25th	50th	75th	95th
Urban						
Fewer than 100 beds	3,635	2,958	3,307	3,532	3,906	4,624
100-249 beds	3,695	3,088	3,472	3,770	4,282	5,367
250-499 beds	4,099	3,257	3,508	3,924	4,526	6,060
500 beds and over	4,653	3,347	3,903	4.550	5.529	7,685
Rural						
Fewer than 51 beds	2,885	2,529	2,629	2,796	2,958	4,135
51-100 beds	2,867	2,470	2,629	2,728	2,946	3,549
101-200 beds	2,938	2,526	2,703	2,859	3,021	3,482
Over 200 beds	3,144	2,605	2,888	3.062	3,192	3,946
Voluntary[f]	3,941	2,610	2,930	3,502	4,022	5,240
Urban Government	4,448	3,003	3,396	3,770	4,745	6,876
Rural Government	2,912	2,477	2,635	2,772	3,010	4,079
Proprietary	3,452	2,465	2,680	3,221	3,716	4,646

a.   Incurred payments (including copayments) weighted by the number of Medicare discharges. The unweighted average for all hospitals is $4,344 per case.

b.   MSA > 1 million refers to a Metropolitan Statistical Area (MSA) containing more then 1 million people (970,000 people in New England).

c.   Sole community hoepitale are hoepitale that (because of factors such as isolated location, weather conditione, travel conditione, or absence of other hoepitale) are the sole source of inpatient services reasonably available in a geographic area. In some cases, their PPS payments are based on hospital-specific costs rather than the PPS rates. This category includee 358 hospitals currently designated as sole community hospitals, plus an additional 134 hospitals estimated to be eligible (effective April 1990) for sole community hospital designation under the Omnibus Budget Reconciliation Act of 1989.

d.   Rural referral centers are rural hoepitale that have certain characteristics in common with urban hoepitale. Theii PPS payments are based on the basic rate for hoepitale in other urban areas. Rural referral centers that are also sole community hospitals are included in the sole community category.

e.   Hospitals with intern-and-reeident-to-bed ratios greater than or equal to 0.25 are called major teaching hospitals. Those with lower ratios are called other teaching hospitals.

f.   Voluntary hospitals are owned and operated by any fraternal, religioue, or not-for-profit community organization. This category of 3,234 hospitals includee 85 hospitals of unknown ownership.

range of payments under the PPS. For that, payments under PPS were computed for different categories of hospitals and then **adjusted** for differences in their case mixes. (For convenience, these will be called "payments per standardized case.") Conceptually, this is similar to computing the PPS payment to each hospital for an identical case--a case with DRG weight 1.0000.

Table A-2 on page 54 shows, for various categories of hospitals, the average estimated payment per standardized case for fiscal year 1991 (the first column of numbers) and the percentile distribution of payments per case under the PPS for a standardized case (the next **five** columns of numbers). For example, the average cost per discharge for all hospitals is $3,857. Five percent of all hospitals, however, receive $2,563 or less, while another 5 percent receive $5,192 or more (see the first row in Table A-2).

Payments under PPS are systematically related to certain hospital characteristics. Major teaching hospitals, for example, receive **two-**thirds higher average payments per discharge than nonteaching hospitals. Moreover, the top 5 percent of major teaching hospitals receive about three times as much per discharge as the bottom 5 percent of nonteaching hospitals. Other systematic relationships are also apparent: urban hospitals receive higher payments than rural **hospitals;** hospitals in large urban areas receive more than those in other urban areas.

Interpreting these differences among hospitals is not straight-forward. In theory, the difference in payment between a major teaching and a nonteaching hospital in the same city for the same type of case might be as little as 18 percent. The major teaching hospital, however, is more likely to be in a high-cost, large urban area while the nonteaching hospital is more likely to be in a low-cost, rural setting. The large variation in average payments per discharge is thus the result of interaction between the various adjustments under the PPS.

STATISTICAL METHODS AND RESULTS

The first section of this appendix briefly describes the two statistical models CBO estimated in the analysis reported above. The second section presents more complete statistical results than were included in the paper.

STATISTICAL METHODS

As described in the paper, CBO's analysis is based on two regression models. Both models were estimated in the "double logarithm" form-- that is, on the left-hand side of the equation is the logarithm of Medicare costs per case and on the right-hand side are the logarithms of continuous variables such as the case mix index, the wage index, and the ratio of number of interns and residents to the number of beds (IRB).[1] This functional form implies a multiplicative relationship between costs and the continuous explanatory variables.

The regression model can be illustrated with the example of a simple two-variable relationship:

$$Y = aX^b,$$

where "X" and "Y" are variables and "a" and "b" are fixed coefficients.

If the logarithms of both sides of the equation are taken, the resulting functional form:

$$Log(Y) = Log(a) + bLog(X)$$

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1. Dummy variables are not transformed by taking logarithms.

is linear. Furthermore, **"b"--the** coefficient of Log(X)--can be inter-
preted for small changes as the approximate percentage change in Y
associated with a 1 percent change in X. That is, b is the elasticity of y
with respect to a change in X. For example, if X is the case mix index
and the value of the coefficient is 0.5, then a 1 percent change in the
case mix index will be associated with about a 0.5 percent change in
costs per case (after controlling for the factors represented by the other
variables in the regression equation).

The linear regression equations that were estimated also included
dummy variables--that is, variables that take on values of 1 or 0 to
indicate whether or not a hospital has a specific characteristic. For
example, the variable "BIGCITY" indicates that a hospital is located in
a large metropolitan statistical area when its value is **1.** Otherwise, its
value is 0.

The coefficient of a dummy variable has a slightly different inter-
pretation: it corresponds to the percentage change in costs per case
associated with the dummy variable having a value of 1.0. For exam-
ple, a coefficient of 0.01 on the dummy variable **BIGCITY** indicates
that a hospital located in a large MSA has approximately **1** percent
higher costs than a hospital located in a smaller MSA, assuming that
all other circumstances are the same.

Table B-l provides definitions for all the variables used in the
CBO analysis. Table B-Z shows the variables that were included in
each regression model. **"R"** indicates that the variable was included in
the model, but its coefficient was restricted to the legislated value for
1990. **"N"** indicates that the variable was included, and its regression
coefficient was not restricted. For example, in both models, the
BIGCITY coefficient was set at its legislated value of 0.016. This
value, 0.016, may be interpreted as follows: a hospital located in a
Metropolitan Statistical Area of more than 1 million people (970,000
people in New England) has costs that are assumed to be about 1.6
percent higher than those for an identical hospital that is located in an
MSA with 1 million people or fewer.

TABLE B-l.   DEFINITIONS OF VARIABLES

CPC	Logarithm of Medicare costs, less Medicare outlier payments, per Medicare case.
CONSTANT	Indication that the model includes a constant term.
TEACH	Logarithm of $(1 + IRB)$, where **IRB** is the ratio of the number of interns and residents to the number of beds.
CMI	Logarithm of the case mix index.
WAGE	Logarithm of the Medicare wage index.
URBAN	A dummy variable that indicates whether a hospital is located in an urban area or not.
BIGCITY	A dummy variable that indicates whether or not a hospital is located in a Metropolitan Statistical Area containing more than 1 million people (970,000 in New England).
DSP1	A dummy variable that indicates whether or not a hospital is a rural hospital with a disproportionate share index of 0.45 or greater.
SU1 to **SU8**	Eight dummy variables that indicate whether or not an urban hospital with fewer than 100 beds has a disproportionate share index in one of eight categories: $(5 \leq \text{Index} < 10)$, $(10 < \text{Index} < 15)$, $(15 \leq \text{Index} < 20)$, $(20 \leq \text{Index} < 25)$, $(25 < \text{Index} < 35)$, $(35 \leq \text{Index} < 45)$, $(45 \leq \text{Index} < 55)$, or $(\text{Index} \geq 55)$.
BU1 to **BU8**	Eight dummy variables that indicate whether or not an urban hospital with 100 or more beds has a disproportionate share index in one of the eight categories.
SR1 to **SR8**	Eight dummy variables that indicate whether or not a rural hospital with 100 or fewer beds has a disproportionate share index in one of the eight categories.
BR1 to **BR8**	Eight dummy variables that indicate whether or not a rural hospital with more than 100 beds has a disproportionate share index in one of the eight categories.

SOURCE: Congressional Budget Office.

NOTE: A dummy variable equals 1 when the hospital has a particular characteristic and equals 0 otherwise.

The dependent variable in both models was Medicare costs per case in 1987 reduced by the amount of outlier payments per case. Each of the models was estimated using the most recent available data about hospitals' characteristics.

TABLE B-2.   VARIABLES IN THE STATISTICAL MODELS

	1991 Law[a]	Model 1991 Law Except for Indirect Teaching Adjustment[b]
Dependent Variable	**CPC**	**CPC**
Explanatory Variables		
CONSTANT	**N**	**N**
TEACH	**R**	**N**
CMI	**R**	**R**
WAGE	**R**	**R**
URBAN	**R**	R
BIGCITY	**R**	**R**
SU1 to SU8	N	N
BU1 to BU8	N	N
SR1 to SR8	N	N
BR1 to BR8	N	N

SOURCE: Congressional Budget Office.

NOTE: The table is coded with the following symbols:

"N" indicates that a variable was included in the model end not restricted to any particular value.

"R" indicates that a variable was included in the model, but restricted to the value indicated in 1991 law.

a.   This estimation model assumed that all aspects of the PPS except the disproportionate share adjustment are the same as 1991 law.

b.   Thii estimation model assumed that all aspects of the PPS except the disproportionate share adjustment and the indirect teaching adjustment are the same as 1991 law.

REGRESSION RESULTS

The estimated coefficients for the disproportionate share variables **from** both models are displayed in the right-hand two columns of Table B-3. The coefficients in the first column are those from the first model in which all other aspects of the payment system are identical to **1991** law. The second column of coefficients is based on the second model in which both the teaching adjustment and the disproportionate share adjustment were allowed to vary from their legislated values. Both sets of **coefficients** can be interpreted as approximate percentage adjustments. For example, the first coefficient in the table indicates that urban hospitals with fewer than 100 beds and an index between 5 percent and 10 percent have costs that are almost 1.2 percent higher than those of hospitals having an index below 5 percent.

With one exception, the estimated disproportionate share adjustment for urban hospitals with fewer than 100 beds is negative in both models (see the first nine coefficients in the columns of Table B-3). The one exception is hospitals with indexes of 5 percent to 10 percent. Moreover, in only one case is the estimated effect statistically significantly different from zero--hospitals with indexes of 35 percent to 45 percent have a statistically significant, but negative, coefficient in both models.2

For urban hospitals with 100 or more beds, the estimated disproportionate share adjustment differs somewhat between the two models. In the first model, the estimated disproportionate share adjustments are not statistically different from zero except for hospitals with indexes of 55 percent or more.   For them, the estimated disproportionate share adjustment is about 5 percent, compared with a minimum of 28 percent under 1991 law. In the second model--under which both the teaching adjustment and the disproportionate share adjustment are allowed to vary from their legislated values--three **coefficients** are statistically greater than zero, but the estimated adjustments are considerably lower than under 1991 law. For example, the

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2.   The **significance** levels reported in Table B-3 **are** bad on two-tailed **tests. In other words,** the null **hypothesis** is that the true value of the **coefficient** ie zero.

TABLE B-3. ESTIMATED VALUES FOR THE DISPROPORTIONATE SHARE ADJUSTMENT BY LOCATION, NUMBER OF BEDS, AND DISPROPORTIONATE SHARE INDEX BASED ON TWO ALTERNATIVE STATISTICAL MODELS

| | | Payment Model | |
Disproportionate Share Index	Number of Hospitals[a]	1991 Law[b]	1991 Law Except for Indirect Teaching Adjustment[c]
Urban Hospitals			
Fewer Than 100 Beds			
5 ≤ Index < 10	107	1.2	0.3
10 ≤ Index < 15	85	-4.4	-4.3
15 ≤ Index < 20	55	-3.1	-4.1
20 ≤ Index < 25	31	-4.8	-5.7
25 ≤ Index < 35	52	-1.3	-2.3
35 ≤ Index < 45	28	-14.6**	-15.3***
45 ≤ Index < 55	24	-3.2	-4.0
Index ≥ 55	31	-2.3	-3.3
100 or More Beds			
5 ≤ Index < 10	336	-0.4	0.2
10 ≤ Index < 15	239	-1.4	-0.8
15 ≤ Index < 20	403	-1.1	-0.3
20 ≤ Index < 25	235	-1.1	1.4
25 S Index c 35	192	-1.7	1.1
35 ≤ Index < 45	103	-0.5	4.6***
45 ≤ Index < 55	56	0.0	4.9**
Index ≥ 55	77	5.2*	8.5***

SOURCE: Congressional Budget Office estimates based on 1987 data from Health Care Financing Administration end other sources.

NOTE: Hospitals were grouped in categories with disproportionate share indexes ranging from 5 percent up to (but not including) 10 percent, end so on up to 55 percent or more.

*   Statistically different from zero at the 1 percent level.

**   Statistically different from zero at the 5 percent level.

***   Statistically different from zero at the 10 percent level.

TABLE B-3.   (Continued)

		Payment Model	
Disproportionate Share Index	Number of Hospitalsa	1991 Lawb	1991 Law Except for Indirect Teaching Adjustmentc

Rural Hospitals

100 or Fewer Beds			
5 ≤ Index < 10	272	**-7.0*****	**-8.1*****
10 ≤ Index < 15	222	-2.0	-3.1
15 ≤ Index < 20	167	-0.3	-1.3
20 ≤ Index < 25	127	**-6.2*****	**-7.3*****
25 ≤ Index < 35	193	**-7.8*****	**-8.9*****
35 ≤ Index < 45	**99**	**-7.5*****	**-8.6*****
45 ≤ Index < 55	**123**	**-8.5*****	**-9.6*****
Index ≥ 55	111	**-7.9****	**-9.0*****
More Than 100 Beds			
5 ≤ Index < 10	41	-0.8	-1.7
10 ≤ Index < 15	85	0.6	-0.3
15 ≤ Index < 20	59	-1.6	-2.2
20 ≤ Index < 25	58	**0.0**	-0.6
25 ≤ Index < 35	**68**	**-0.3**	-1.2
35 ≤ Index < 45	**30**	**-5.3***	**-6.2****
45 ≤ Index c 55	12	-6.9	-7.9
Index ≥ 55	14	-0.2	-1.3

a.   **Number of hospitals included in the regression estimate.**

b.   **This estimation model assumed that all aspects of the PPS except the disproportionate share adjustment are the same as 1991 law.**

c.   **This estimation model assumed that all aspects of the PPS except the disproportionate share adjustment and the indirect teaching adjustment are the same as 1991 law.**

adjustment for hospitals with indexes of 35 percent to 45 percent is estimated to be less than 5 percent compared with at least 15 percent under 1991 law. Moreover, the estimated teaching adjustment that lies behind the second model is only 4.6 percent, compared with 7.7 percent under 1991 law.

For rural hospitals in either size category, the estimated disproportionate share adjustment is greater than zero (though not significant) in only one case: rural hospitals with more than 100 beds and indexes between 10 percent and 15 percent have an estimated coefficient of 0.6 percent under the first model. In fact, for rural hospitals with 100 beds or fewer in the highest five categories of the index,, the estimated value is both negative and statistically significant.

IMPACT OF ALTERNATIVE OPTIONS ON HOSPITALS IF SAVINGS WERE RETURNED TO ALL THE HOSPITALS

This appendix contains tables that show the impact on hospitals of the three options that would reduce the disproportionate share adjustment under the assumption that the savings would be returned to all hospitals by increasing the basic Prospective Payment System rates. Tables 9 through 11 in Chapter V assumed that the basic rates would be unchanged.

The estimates in Tables Cl through C3 are based on the assumption that the basic PPS rates would be increased to keep total PPS payments at the same level. Furthermore, urban and rural rates are assumed to be adjusted so that total payments to rural hospitals and the total payment to urban hospitals, calculated separately, would remain the same. Rural referral centers--which receive the same rates as urban hospitals--were included in the urban hospitals' totals for the purposes of these calculations. (Rural referral centers are classified as rural hospitals, however, in Tables Cl through C3 to parallel the treatment in Tables 9 through 11.)

TABLE C-l.   ESTIMATED CHANGE IN PROSPECTIVE PAYMENT SYSTEM PAYMENTS TO HOSPITALS UNDER THREE OPTIONS THAT WOULD REDUCE THE DISPROPOR- TIONATE SHARE ADJUSTMENT, IF SAVINGS WERE RETURNED TO HOSPITALS (As a percentage of total payments under 1991 law, fiscal year 1991)

Characteristics of Hospitals	Number of Hospitals	Option 1	Option 2	Option 3
All Hospitals				
All Hospitals	5,737	0.0	0.0	0.0
Urban	3,109	-0.1	-0.2	-0.1
Rural	2,628	0.6	1.0	0.3
Teaching	1,191	-0.7	-2.4	-0.3
Nonteaching	4,546	0.8	2.7	0.4
Disproportionate Share	1,577	-4.4	-4.9	-2.4
Nondisproportionate Share	4,160	3.1	3.4	1.7

SOURCE: Congressional Budget Office estimates based on data from Health Care Financing Ad- ministration and other sources.

NOTES: **Option 1:**   Eliminate almost all of the disproportionate share adjustment, retaining only a reduced adjustment for big urban hospitals (100 or more beds) with indexes of 55 percent or more. For these hospitals, the adjustment would be 5 percent--compared with a minimum adjustment of 28.2 percent under 1991 law.

Option 2:   Target a substantially reduced disproportionate share adjustment to big urban hospitals with the highest indexes as shown below, end reduce the teaching adjust- ment from 7.7 percent to 4.6 percent:

Value of Index (Percent)*	Adjustment (Percent)
20 s Index < 35	1
35 s Index < 55	5
Index ≥ 55	

Option 3:   Retain the 1991 law disproportionate share adjustment only for hospitals with in- dexes of 35 percent or more.

(Continued)

TABLE C-l.   (Continued)

Characteristics of Hospitals	Number of Hospitals	Option 1	Option 2	Option 3
Disproportionate Share Hospitals				
15 ≤ Index C 20[a]	405	0.0	-0.2	-1.5
20 ≤ Index < 25	238	-2.6	-3.6	-4.0
25 ≤ Index < 35	247	-5.8	-7.1	-7.2
35 ≤ Index C 45	188	-9.5	-9.3	1.9
45 ≤ Index < 55	240	-11.7	-11.6	1.6
Index ≥ 55	259	-14.2	-13.8	1.7
Urban				
Fewer than 100 beds	86	-1.3	0.4	2.0
100 or more beds	1,108	-4.4	-5.0	-2.5
Rural	383	-3.9	- 3.6	-1.2
Teaching	597	-4.4	-6.5	-2.4
Nonteaching	980	-4.3	-1.7	-2.5
Special Groups:				
MSA > 1 million[b]	574	-5.5	-6.8	-2.3
Urban government	225	-6.8	-9.1	-2.0
Rural referral center[c]	28	-4.5	-3.9	-2.5

a.   The index is the disproportionate share index used in calculating the disproportionate share adjust-ment. The symbols 15 ≤ Index < 20 indicate hospitals with indexes from 15 percent up to (but not including) 20 percent. The symbol Index ≥ 55 indicates hoepitala with en index of 55 percent or more.

b.   MSA > 1 million refers to a Metropolitan Statistical Area (MSA) containing more then 1 million people (970.000 people in New England).

c.   Rural referral centers are rural hospitals that have certain characteristics in common with urban hospitals. Their PPS payments are based on the basic rate for hospitals in other urban areas. Rural referral centers that are also sole community hoepitals are included in the sole community category (not shown in this table).

TABLE C-2.   ESTIMATED 1987 PROSPECTIVE PAYMENT SYSTEM
MARGINS FOR HOSPITALS UNDER 1991 LAW AND
UNDER THREE OPTIONS THAT WOULD REDUCE THE
DISPROPORTIONATE SHARE ADJUSTMENT, IF
SAVINGS WERE RETURNED TO HOSPITALS
(In percent)

Characteristics of Hospitals	1991 Law	Option 1	Option 2	Option 3
All Hospitals				
All Hospitals	5.9	5.9	5.9	5.9
Urban	5.7	5.6	5.6	5.7
Rural	7.0	7.6	7.9	7.4
Teaching	7.8	7.2	5.5	7.5
Nonteaching	3.9	4.6	6.3	4.3
			5.7	
Disproportionate Share	10.2	6.2	**6.1**	8.0
Nondisproportionate Share	2.9	5.8		4.6

SOURCE: Congressional Budget Office estimates based on data for 1987 from the Health Care Financing Administration and other sources.

NOTES: Option 1:   Eliminate almost all of the disproportionate share adjustment, retaining only a reduced adjustment for big urban hospitals (100 or more beds) with indexes of 55 percent or more. For these hospitals, the adjustment would be 5 percent--compared with a minimum adjustment of 28.2 percent under 1991 law.

Option 2:   Target a substantially reduced disproportionate share adjustment to big urban hospitals with the highest indexes as shown below, and reduce the teaching adjustment from 7.7 percent to 4.6 percent:

Value of Index (Percent)*	Adjustment (Percent)
20 ≤ Index < 35	1
35 ≤ Index < 55	5
Index ≥ 55	9

Option 3:   Retain the 1991 law disproportionate share adjustment only for hospitals with indexes of 35 percent or more.

The PPS operating margin is defined as: (PPS payments - PPS operating costs)/(PPS payments).

(Continued)

TABLE C-2.   (Continued)

Characteristics of Hospitals	1991 Law	Option 1	Option 2	Option 3
Disproportionate Share Hospitals				
15 ≤ Index < 20[a]	**5.5**	5.5	5.3	4.1
20 ≤ Index < 25	**8.6**	6.1	5.2	4.8
25 ≤ Index < 35	**12.8**	7.3	6.1	6.0
35 ≤ Index < 45	16.3	**7.5**	7.6	17.8
45 ≤ Index < 55	16.4	**5.2**	5.6	17.7
Index ≥ **55**	18.3	**4.9**	5.9	19.6
Urban				
Fewer than 100 beds	10.8	9.6	11.1	12.5
100 or more beds	10.0	5.9	**5.4**	**7.7**
Rural	13.0	9.5	**9.7**	**12.0**
Teaching	11.3	**7.3**	**5.3**	9.1
Nonteaching	8.1	**4.0**	**6.5**	5.8
Special Groups:		**5.4**		
MSA > 1 **million**[b]	10.6	**6.3**	4.3	8.4
Urban government	12.1	⌣.⌣	3.9	10.1
Rural referral **center**[c]	14.3	**10.1**	10.7	12.2

a.   The index is the disproportionate share index used in calculating the disproportionate share adjustment. The symbols 15 ≤ Index < 20 indicate hospitals with indexes from 15 percent up to (but not including) 20 percent. The symbol Index ≥ 55 indicates hospitals with an index of 55 percent or more.

b.   MSA > 1 million refers to a Metropolitan Statistical Area (MSA) containing more than 1 million people (970,000 people in New England).

c.   Rural referral centers are rural hospitals that have certain characteristics in common with urban hospitals. Their PPS payments are based on the basic rate for hospitals in other urban areas.   Rural referral centers that are also aole community hospitals are included in the sole community category (not shown in this table).

TABLE C-3.   ESTIMATED 1987 OVERALL MARGINS FOR HOSPITALS UNDER 1991 LAW AND UNDER THREE OPTIONS THAT WOULD REDUCE THE DISPROPORTIONATE SHARE ADJUSTMENT, IF SAVINGS WERE RETURNED TO HOSPITALS (In percent)

Characteristics of Hospitals	1991 Law	Option 1	Option 2	Option 3
All Hospitals				
All Hospitals	3.9	3.9	3.9	3.9
Urban	3.7	3.7	3.7	3.7
Rural	5.1	5.2	5.3	5.2
Teaching	3.2	3.1	2.6	3.1
Nonteaching	4.8	4.9	5.4	4.9
Disproportionate Share	3.3	2.3	2.1	2.7
Nondisproportionate Share	4.4	5.2	5.3	4.9

SOURCE: Congressional Budget Office estimates based on data for 1987 from the Health Care Financing Administration and other sources.

NOTES: Option 1:   Eliminate almost all of the disproportionate share adjustment, retaining only a reduced adjustment for big urban hospitals (100 or more beds) with indexes of 55 percent or more. For these hospitals, the adjustment would be 5 percent--compared with a minimum adjustment of 28.2 percent under 1991 law.

Option **2:**   Target a substantially reduced disproportionate share adjustment to big urban hoapitals with the highest indexes as shown below, and reduce the teaching adjustment from 7.7 percent to 4.6 percent:

Value of Index (Percent)a	Adjustment (Percent)
20 ≤ Index c 35	1
35 ≤ Index c 55	5
Index ≥ 55	9

Option **3:**   Retain the 1991 law disproportionate share adjustment only for hospitals with indexes of 35 percent or more.

The overall margin is defmed as: (Total revenue - Total costs)/(Total revenue).

(Continued)

TABLE C-3.   (Continued)

Characteristics of Hospitals	1991 Law	Option 1	Option 2	Option 3
Disproportionate Share Hospitals				
15 ≤ Index < 20[a]	3.7	3.7	3.7	3.4
		3.4	3.2	3.1
20 ≤ Index < 35	1.2	3.6	3.3	3.3
35 ≤ Index < 45	0.4	-0.9	-0.9	1.6
45 ≤ Index < 55	...	-2.2	-2.2	0.8
Index ≥ 55	0.0	-2.5	-2.3	0.3
Urban				
Fewer than 100 beds	-2.4	-2.7	-2.3	-1.9
100 or more beds	3.1	2.1	2.0	2.6
Rural	6.7	5.6	5.7	6.4
Teaching	3.0	2.1	1.6	2.5
Nonteaching	3.9	2.7	3.4	3.2
Special Groups:				
MSA > 1 million[b]	1.9	0.7	0.4	1.4
Urban government	2.8	1.7	1.2	2.4
Rural referral[c]	7.9	6.7	6.8	7.3

a.   The index is the disproportionate share index used in calculating the disproportionate share adjustment. The symbols 15 ≤ Index < 20 indicate hospitals with indexes from 15 percent up to (but not including) 20 percent. The symbol Index ≥ 55 indicates hospitals with an index of 55 percent or more.

b.   MSA > 1 million refers to a Metropolitan Statistical Area (MSA) containing more than 1 million people (970,090 people in New England).

c.   Rural referral centers are rural hospitals that have certain characteristics in common with urban hospitals. Their PPS payments are based on the basic rate for hospitals in other urban areas. Rural referral centers that are also eole community hospitals are included in the sole community category (not shown in this table).